

V I E W  
OF THE  
*SCIENCE OF LIFE;*

ON THE PRINCIPLES ESTABLISHED

IN

*THE ELEMENTS OF MEDICINE,*

OF THE LATE CELEBRATED

JOHN BROWN, M. D.

WITH AN ATTEMPT TO CORRECT SOME IMPORTANT ER-  
RORS OF THAT WORK.

AND

CASES IN ILLUSTRATION, CHIEFLY SELECTED FROM THE  
RECORDS OF THEIR PRACTICE, AT THE GENERAL  
HOSPITAL, AT CALCUTTA.

BY

*WILLIAM TATES, & CHAS. MACLEAN.*

TO WHICH IS SUBJOINED,

A TREATISE

ON THE ACTION OF MERCURY UPON LIVING BODIES,  
AND ITS APPLICATION FOR THE CURE OF DISEASES  
OF INDIRECT DEBILITY.

AND

A DISSERTATION

ON THE SOURCE OF

*EPIDEMIC AND PESTILENTIAL  
DISEASES;*

IN WHICH IS ATTEMPTED TO PROVE, BY A NUMEROUS  
INDUCTION OF FACTS, THAT THEY NEVER ARISE  
FROM CONTAGION, BUT ARE ALWAYS PRODUCED  
BY CERTAIN STATES, OR CERTAIN VICISSI-  
TUDES OF THE ATMOSPHERE.

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*By CHARLES MACLEAN.*

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CALCUTTA:

FROM THE PRESS OF THOMSON AND FERRIS.

1797.







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## ADVERTISEMENT.

*HE who abandons Principles in Deference to popular Clamour, and he who perseveres in Error in spite of Conviction, may indeed obtain a momentary Celebrity; but they are equally unqualified for the Promotion of Science.*

*As Truth, not an indiscriminate Assertion of any Doctrine, is the Object of this Publication, Members of the Profession, and others who may be so inclined, are invited to communicate Facts, or Observations, whether they may tend to confirm, or refute the Principles which it avows.*

*The Communications thus received, will be published, with Comments, with or without the Name of the Author, as may be most agreeable to himself.*

*Papers on this Subject, addressed to Mr. MACLEAN, or to Messrs. THOMSON and FERRIS, Printers, Calcutta, will be attended to.*

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WILLIAM YATES, & CHARLES MACLEAN.

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“ THERE are some modern Practitioners, who declaim against  
“ medical Theory, in general, not considering, that to think  
“ is to theorise; and that no one can direct a Method of  
“ Cure to a Person labouring under Disease, without think-  
“ ing,—that is without theorising; and happy, therefore,  
“ is the Patient, whose Physician possesses the best Theory.”

DARWIN'S ZOONOMIA.—PREFACE, P. 2.

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## P R E F A C E.

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HAVING applied to practice, in the General Hospital, at Calcutta, those medical Principles, vulgarly known by the Name of the Brunonian Doctrine; and being convinced, from the Result, of their Conformity to Truth; we think it may be useful to attempt to promulgate the Doctrine in India, where it seems to be almost wholly unknown, and to call forth the Attention of medical Men, to a Subject so worthy of Investigation.

SOME Cases are annexed, in Illustration of the Mode, in which, according to our Ideas, the Principles of the Doctrine should be applied to practice.

To those who cannot be acquainted with the Circumstances, it may be proper to explain, why



two Names appear to this Publication. Having carried on our Practice together, in the General Hospital, at Calcutta, and having by Chance discovered, that each of us entertained a Design of Attempting to promulgate the Doctrine of Brown, with some Modifications, in India; we thought it might be more conducive to the End in View, to consider the Subject conjointly.—The Result is now submitted to the Public.

WILLIAM YATES.

CHARLES MACLEAN.



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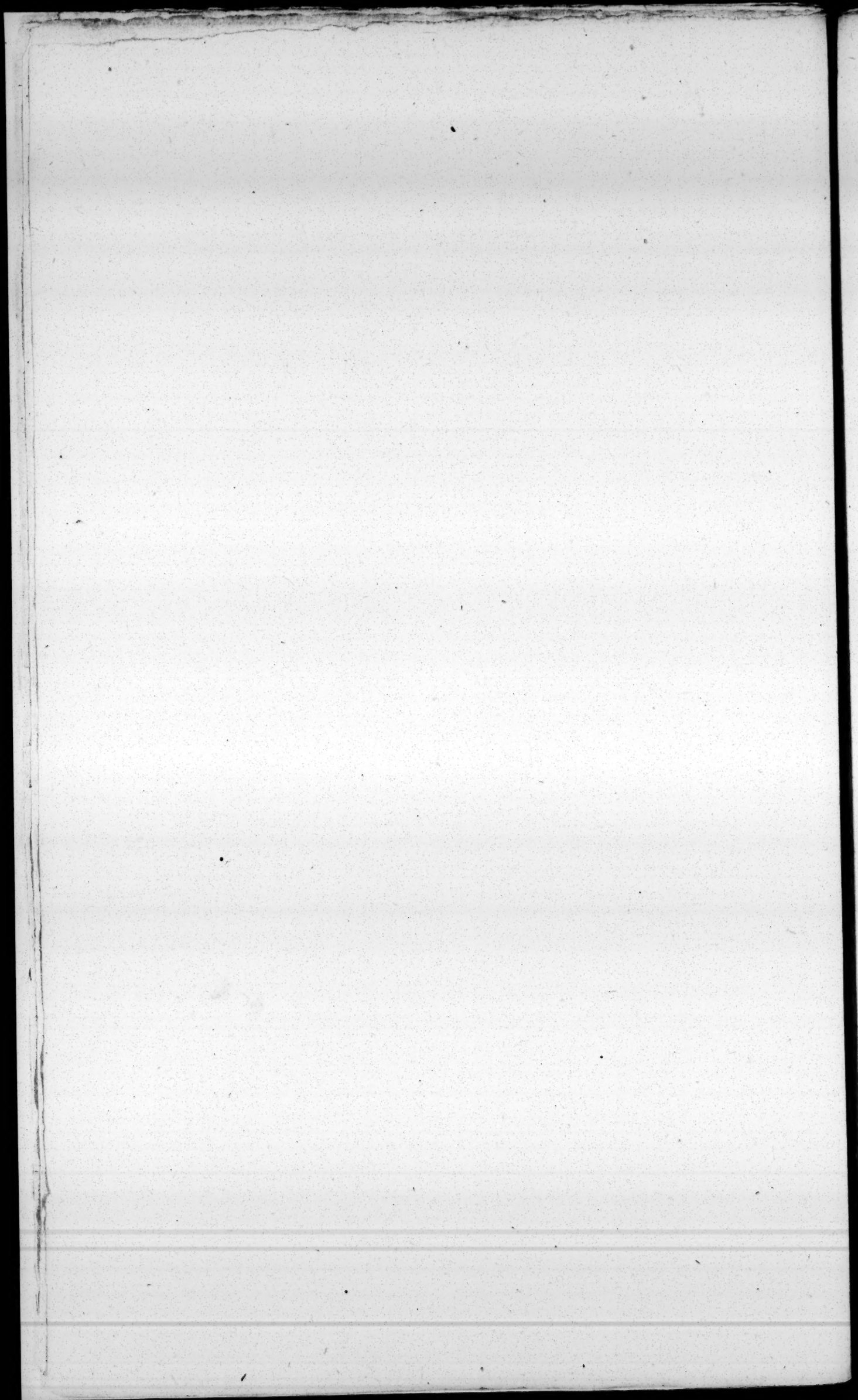
## ERRATA.

Introduction, page viii. line 2d, for *sentiments*, read *errors*.

Ditto 12th, for *effect*, read *affect*.

Page ix. line 7th, for *molis*, read *moles*.







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## INTRODUCTION.

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UPON examining the records of medicine, from the earliest periods, it appears that physicians have never considered the living body as subject, like all other parts of the universe, to regular and immutable laws ; but seem actually to have drawn an opposite conclusion. It is from this circumstance principally, that the practice of medicine has hitherto acquired so small a portion of certainty, as still to merit the appellation bestowed upon it, more than two thousand years ago, of a “ conjectural art.”

THE various doctrines, which have been published to the world, regarding the human body, are, in general, nothing more than a mere assemblage of words, without the power of conveying any distinct ideas. \* Hypothesis has suc-

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\* As truth is but one, and the hypotheses, which may be formed upon any given subject, infinite ; so the chance of any hypothesis being



ceeded hypothesis, in the same regular manner, that physician has succeeded physician. Opinions have been adopted, according to the chances of education; supported by the authority of great names; and religiously adhered to, as fundamental axioms, into the truth of which it would have been heresy to enquire.

THE mischiefs arising from this source, “greatly extend their influence, and spread in every possible direction, when error acquires the patronage of authority, and the protection of dignified names. It then takes its chair in the schools, and assumes the pompous titles of profound, refined, or liberal knowledge. Raised to this eminence, the industry of a single teacher, or author, may corrupt thousands; that of a few, whole nations; and the addition of a proportional number, ruin the education of a world.

“THIS universal diffusion of error, receives sanction and establishment from the progress

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true, is as one is to an infinite number; or the certainty of its being erroneous, absolute. Every just deduction of reasoning, is properly called theory. But these terms are, to the great detriment of science, very generally confounded.



“ of time. It becomes venerable : and every  
“ attempt to detect it, is branded with the name  
“ of profanity or madness.”\* Such has, unhappily, been too long the state of science. But, of late years, every department of human knowledge has undergone a rapid improvement. The dawn of reason has, in a peculiar degree, begun to enlighten the medical world ; and the practice to assume a consistency, which could only be founded on the discovery of the laws, by which all living bodies are governed.

THIS discovery, one of the grandest efforts of the human mind, that ever dignified the page of science, the discoveries of the immortal Newton himself not excepted, is contained in the Elements of Medicine, of the late celebrated John Brown. This discovery, hitherto neglected from ignorance, opposed from the shame of recantation, and calumniated from interest, prejudice, and passion, contains so many undeniable truths that, to an unbiassed mind, it only requires to be known, in order to be admired and adopted. The doctrine, although it has not yet been sanctioned by the medical schools of Bri-

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\* Vide Introduction to the Outlines, &c. by John Brown, p. ii.



tain, has, however, been very generally received, in the other schools of Europe, and in America. "In the University of Pavia," says Dr. Rasori, "undoubtedly one of the first in Europe, there is hardly a student endowed with talents, who is not a Brunonian. The doctrine begins equally to spread in Germany. Many of the periodical publications of that country have noticed it, and the *Elementa* have lately been published there. A friend at Genoa assures me, that several surgeons to French men of war have informed him, that Brown is known and much admired in France. In the University of Pavia, Brown is in high esteem, even with some of the most respectable professors; and in other parts of Italy, I can assert, from my own knowledge, that old physicians have not refused their sanction to many of the Brunonian principles."\*

ONE of his Italian critics, supposed to be Professor Carminati, says, "*Quaerenti mihi causas incredibilis prope illius commotionis animorum, atque ingentis feré plausus, quibus*

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\* Vide Beddoes' *Life of Brown*.



“ nuperrimé singularis illa hypothesis, cui no-  
“ vum Universæ Medicinæ Systema celeberrif-  
“ mus Angliæ Scriptor et Medicus BRUNO fu-  
“ perstruxit, ab iis optimæ spei adolescentibus ex-  
“ cepta esset, qui in florentissimo Ticinensi Ar-  
“ chigymnasio salutaris artis studiis omnibus  
“ mecum incumbunt, perarduum sane, non fuit  
“ eas \*\*\*\* invenire.”

MANY translations and editions of this work, and various criticisms upon it, have appeared in different parts of Europe, which it is by no means necessary to enumerate here. That the knowledge of it has also made considerable progress, among the medical philosophers of America, is evident, from the frequent allusions made to it, in a late publication, by Dr. Rush, of Philadelphia. “ The principle of the gradual abstraction, as well as of the  
“ gradual application of stimuli to the body, in  
“ all the diseases of indirect debility on the one  
“ hand, and of direct on the other, opens a wide  
“ field for the improvement of medicine. Per-  
“ haps all the discoveries of future ages, will  
“ consist more in a new application of establish-  
“ ed principles, and in new modes of exhibit-  
“ ing old medicines, than in the discoveries of



“ new theories, or of new articles of the *Materia Medica*.”\*

ANOTHER proof of the excellence of the doctrine, no less convincing, is deducible from the frequent plagiarisms of its fundamental principles, by which some men, desirous of passing them upon the world as their own discoveries, have lately endeavoured to establish a reputation for superior genius. Any attempt to detect these, in their various and almost infinite ramifications, would, as Dr. Beddoes† very justly remarks, be now unnecessary. Among the most conspicuous, however, in this list, we may particularise Doctor Girtanner.—There is not a single idea in any of the papers, which he has published upon this subject, that is not borrowed from the Doctrine of Brown, or

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\* Vide “ *An Account of the bilious remitting yellow Fever*,”—page 284.

† It would be injustice, upon this occasion, to pass over, without a tribute of applause, the laudable exertions of Dr. Beddoes, in promulgating the knowledge of Brown’s doctrine. He is perhaps the only author in Britain, who has dared publicly to assert the merits of it. This ingenuous conduct, and the liberal manner in which he stepped forward, to benefit the unfortunate family of our illustrious philosopher,\* equally evince his superior mind, and universal philanthropy.

\* Vide a new edition of the *Elements of Medicine*, of John Brown, M. D. with a Biographical Preface by Thomas Beddoes, M. D.



the different modifications of it, discussed in the Medical Society of Edinburgh, and recorded upon its books. These he has freely used, without the smallest acknowledgment. His doctrine, of the principle of irritability, is taken from a paper, written by a respectable member of that Society.

DR. G. was a student at Edinburgh, long after the publication of the *Elementa Medicinæ*; and at a time, when the principles of the doctrine were the subject of investigation, in the literary societies of that University. His plagiarisms must therefore have been wilful; and no acknowledgment, subsequent to detection, can be considered as an atonement. There is something so flagitious in the attempt to rob departed genius of its honours—honours too, in the acquisition of which friendships, emolument, and ease were all sacrificed,—that it cannot be too severely reprobated.

It is a common and often a true observation, that “no man is a prophet in his own country.” Accordingly, it appears, that this doctrine was longer neglected, and is still more anxiously opposed in Britain, than in other nations. Few



men, at an advanced period of life, have sufficient courage to relinquish sentiments to which they have been habituated, from their early years; fewer still have candour enough to acknowledge the truth of what they have once strenuously opposed; and young men, although generally open to conviction, seldom have sufficient confidence in themselves, to stem the torrent of general opinion. The rising generation, however, in order to adopt the new doctrine, will not have many sacrifices to make. It will neither affect their interest, nor wound their vanity.

THAT the force of truth already begins to silence the unmeaning clamour, which has hitherto been made against this doctrine in Britain, is evinced, by the reception of a late voluminous publication, of which the chief merit consists in, an occasional and imperfect coincidence with the principles of Brown. It will readily be perceived, that we allude to the *Zoonomia* of Dr. Darwin,—a work which, from the excellent character and reputed talents of its author, had raised considerable expectation in the public mind. But disappointment, on the perusal, was in proportion to the previous expec-



tation. Instead of important and luminous corrections of the doctrine, which might have been looked for, at this time of day, from a man of abilities, pursuing the same tract of investigation, a want of argument and correct reasoning, is found to pervade the whole. It is such a *rudis indigestaque molis* that, after wading through nearly six hundred pages,\* it seems impossible to comprehend the scientific principles, upon which the author intended to build his doctrine. From these strictures, it ought not to be inferred, that we wish to detract from the merits of the excellent poet, who has so elegantly sung the "Loves of the Plants." But justice forbids that, out of respect to character or reputation, one man should be allowed to assume to himself, any portion of that honour, which exclusively belongs to another. Science knows no personal distinctions. The author of a grand discovery, is, at least, entitled to posthumous fame.

THE ORIGIN of this, like every other discovery of importance, has been attempted to be traced

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\* At the time this was written, the first volume only, of Darwin's *Zoonomia*, appeared in India.



to hints thrown out by preceeding authors. Even the visionary speculations of Cullen, have been mentioned, as the source, of some of its fundamental principles :—with just as much propriety might they be imputed to any ingenious suggestion in “The Life and Opinions of Tristram Shandy.” Upon the whole, it may with confidence be asserted, that this doctrine is, in all its parts, original, as it is undoubtedly true, and important in its application. And those, who are disposed to deny it this merit, should, in decency, adduce something like argument, instead of the ebullitions of vanity, detraction, or jealousy.

AFTER this eulogy, the reader may perhaps expect, that the following pages contain a mere verbal copy of Brown's *Elements of Medicine* ; but he will soon perceive, that this is not the case. For, although its fundamental principles are indisputably true, there are several errors in the detail, and some of them of very considerable importance. His opponents, however, if truth had been their object, should have endeavoured to perfect the doctrine, by a correction of its errors, instead of illiberally affecting, on account of partial blemishes, to reject the whole. To the candid, liberal, and enlightened, it will



appear much less wonderful, that Brown should have some times erred, than that he should have been so pre-eminently successful, in first pointing out, to the world, the right path of medical investigation.

THE principal deviations, from the original doctrine, to be found in the following "View of the Science of Life," are these:

1st.—It is demonstrated, that diseases of excessive excitement cannot exist; and that all those, which have been so called, are diseases of indirect debility.

2dly.—ALMOST the whole of the diseases, which were ranked, by Brown, and his followers, among the diseases of direct debility, are shewn to be diseases of indirect debility.

3dly.—IN the mode of applying the exciting powers, for the cure of diseases of indirect debility.

FROM this statement, it appears, that the alterations, here made in the doctrine, as they affect the method of cure, in more than



one half of the diseases, to which living bodies are subject, are of the first importance; and therefore deserve a candid examination.

It may be proper to remark, that some persons have affected to reject this doctrine, upon the very grave and solemn ground, of it's being favourable to intemperance. To those, however, who will take the trouble of making themselves acquainted with its principles, it will only be necessary to observe, that such persons do not understand the subject.

IN climates and countries where the transition, from health to disease, and from disease to death, is often alarmingly rapid, and health always precarious, the knowledge of a doctrine, which reduces the practice of medicine to a degree of certainty hitherto unknown, cannot but be attended with great and evident advantages. To diffuse that knowledge in India, where the doctrine seems to have been but little cultivated, and to have acquired but a small degree of the reputation so justly due to it, is the design of this undertaking. The attempt is made with the greater confidence, from having experienced, in the application of the principles to practice,



a degree of success, far beyond even the most sanguine expectations, that had previously been formed in theory. If, however, this confidence should not, after a fair investigation, be justified by the experience of others, the subject remains open for free discussion, by which alone the doctrine must, finally, be either confirmed, or refuted.

As it is, for obvious reasons, desirable, that a knowledge of medical science, should not be exclusively confined to medical men, we have entirely divested our observations of the mysterious garb, in which such knowledge is usually conveyed to the world.





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VIEW  
OF THE  
*SCIENCE OF LIFE.*

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CHAPTER I.

FUNDAMENTAL PROPOSITIONS.

I.—ALL living bodies possess a certain property, capable of being acted upon by external powers, so as to produce the phænomena of life.

THIS property is denominated **EXCITABILITY**.\*

II.—THE external powers are all such objects as, applied to the whole, or a part of any living

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\* Some recent modifiers of this doctrine, are of opinion, that the exciting powers act upon the muscular fibre only; and therefore use the term **IRRITABILITY**. But as the powers which produce, as well as those which remove disease, evidently affect the whole body, we think it safer to retain the more comprehensive term, adopted by the original author.



body, are capable of acting upon the excitability.

THEY are denominated STIMULI, or EXCITING POWERS.

III.—UPON the application of the exciting powers in a due, deficient, or excessive degree, depend the different states of the excitability.

IV.—UPON the different states of the excitability depend all the phœnomena of health, and disease.

V.—THERE are three states of the excitability.

1st.—THE state of ACCUMULATION. — When a portion of the usual stimuli is withheld, the excitability accumulates; and the body becomes susceptible of impression, in the direct ratio of the subduction.

THIS state constitutes diseases of ACCUMULATION, or of DIRECT DEBILITY.

2dly.—THE MIDDLE state. When the excitability is such, that the application of the accus-



tomed degree of exciting powers, produces  
TONE, OR HEALTH.

3dly.—THE state of EXHAUSTION. When the application of stimuli, has been greater than that which produces healthy action, the excitability is exhausted; and the body becomes less susceptible of impression, in the direct ratio of the excess.

This state constitutes diseases of EXHAUSTION, or, of INDIRECT DEBILITY.

VI.—THE states of accumulation, and exhaustion of the excitability, in their different degrees, constitute all the diseases, to which living bodies are subject.

VII.—DISEASES differ from each other, only in the degree of accumulation, or exhaustion of the excitability, in the whole, or parts of the body.

VIII.—CONSEQUENTLY, as two degrees of the same state, or two different states of the excitability, cannot take place at the same time, in the whole, or any particular part of the body,



two diseases cannot possibly co-exist, in the whole, or a particular part.

IX.—THE cure of all diseases depends upon an application of stimuli, in a degree proportionate to the accumulation, or exhaustion of the excitability.

X.—THE degree of power, with which the functions of life are performed, is expressed by the term EXCITEMENT. Thus, there is a healthy excitement, when the functions of life are justly performed. But in proportion as a deviation from health takes place, either in direct or indirect debility, so the functions of life are performed with less power, or the excitement is diminished.

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## CHAPTER II.

### OF STIMULI, OR THE EXCITING POWERS.



XI.—ALL objects in nature, capable of producing an effect upon living bodies, are stimulant, (II.)



XII.—STIMULI, may be divided into ordinary, and extraordinary.

1st.—ORDINARY stimuli, are all such powers, as are usually applied to living bodies, in a state of health.

2dly.—EXTRAORDINARY stimuli, are such as are occasionally applied to living bodies, as noxious, or may be used, as curative powers. Of this description are all the active substances that are, or may be employed as medicines, whether animal, vegetable, or mineral.

SUBSTANCES usually called POISONS, as their deleterious operation depends wholly upon their superior degree of stimulant power, ought not to be distinctly considered. Any stimulant, when exhibited in sufficient quantity to exhaust the excitability, acts as a poison.

CONTAGION has been enumerated as a cause of pestilential diseases. But as the existence of such a power is by no means proved, it ought not to be admitted in philosophical disquisitions. The grounds of dissent, from an opinion so universally received, will be fully explained in another place.



## CHAPTER III.

APPLICATION OF STIMULI, OR THE EXCITING  
POWERS, FOR THE CURE OF DISEASES.I. *Diseases of direct Debility, or of Accumulation.*

XIII. As the body becomes susceptible of impression, in the direct ratio of the subduction of Stimuli (v. I.), it follows that the force of stimulus to be applied, in the cure of diseases of this state, should be inversely as the accumulation of the excitability. Thus, in the case of persons who have been exposed to great degrees of cold, heat should be applied, first in a degree not much greater than the lowest temperature, to which the person has been exposed, and gradually increased to the usual standard. To frozen limbs, the first application should be snow, then cold water, afterwards water less cold, and so on, through the various degrees, until motion and sensation are fully restored. Whereas, by the immediate application of the accustomed degree of heat, death would be produced in the whole, or those parts of the body, which had been exposed.—To persons, who may have remained



long without food, nourishment should be exhibited in the same gradual manner. The quantity usually taken at a meal would, in such a case, instantly extinguish life,—a fact of which there are many instances upon record. The eyes of persons, who have been long kept in darkness, become exceedingly sensible to the smallest degree of light. Those unfortunate beings, whom the mistaken and perverse policy of man has doomed to long confinement in dungeons, become, in the course of time, capable of distinguishing all the corners of their gloomy abode; where, upon their first entrance, they could distinguish nothing. The impression of the full glare of a meridian light, upon organs in such a state of susceptibility, would occasion instant and irrecoverable blindness. A person, suddenly awoke in the night, can scarcely bear even the small degree of light, emitted from a common candle. It is only by the gradual approach of day, that the eye is enabled to bear the full force of the mid-day sun.

SCURVY seems to be a disease of direct debility, occasioned by the absence of some of the usual exciting powers, particularly nutritive food, heat, and the mental stimuli. These powers must



be gradually applied, in order to re-produce health. Upon this principle it is, that vegetables and vegetable acids, as being less stimulant than fresh animal food, are found so useful in the cure of scurvy. An immediate indulgence in the latter, after a long abstinence, would produce dangerous consequences. In advanced stages of this disease, a very small quantity of stimulus, such as a glass of ardent spirits, or a strong mental impulse, has been frequently known to extinguish life. That diminution of heat has a share in the production of scurvy, is evident from its more frequent occurrence in cold, than in hot climates. And that the absence of the mental stimuli, is often a source of this disease, is obvious from this,—that every circumstance that can occur, during a long voyage, calculated to rouse the mind to moderate exertion, will produce an alleviation of the symptoms;—the sight of an enemy — the sight of land — approach to the destined port—the anticipation of the pleasures of the shore, &c. This is farther corroborated by the frequency of scurvy among the enslaved Africans, in their passage to the West Indies, where all the mental stimuli are as completely abstracted, as can be supposed to happen in almost any possible situation. The disease in this case



affects the men, more than the women and children. The reason is evident. With men, the transition from liberty to slavery, is greater than with women and children, accustomed, in their most free state, to look up to them as their superiors. The minds of the latter too, from being less exercised, are the less capable of reflection, and become more easily reconciled to their new situation; which is also rendered less irksome, by the indulgence usually granted to them, even on board of ships, employed in the vile traffic of slaves.

THE absence of those objects, which were wont to excite pleasurable sensation in the mind, produce diseases of this state.—Such is the dependence of a lover, in the absence of the object beloved: and that melancholy, with which some persons are affected, when absent from their native country.

XIV.—As the situations, in which the ordinary stimuli can be withheld, in any considerable degree, are rare, the diseases of this state are consequently few in number; and seldom become objects of medical treatment.



XV.—IN all of them, the cure consists in a gradual re-application of those exciting powers, the abstraction of which occasioned the disease ; or, in situations where that is impracticable, by a similar application of other powers equivalent in force.

*2.-Diseases of indirect Debility, or of Exhaustion.*

XVI.—As the body becomes less susceptible of impression, in the direct ratio of the excessive application of stimuli (v. iii), it follows that the force of stimulus to be applied, in the cure of diseases of this state, should be directly as the exhaustion of the excitability.

XVII. — As all diseases arise, either from accumulation or exhaustion of the excitability, (vi.) and as the diseases of accumulation have been shewn to be extremely few (xiv), diseases of indirect will probably be to those of direct debility, in some such proportion, as nine hundred and ninety nine to one. The diseases of warm climates may be considered, without exception, as diseases of exhaustion, or of indirect debility.

XVIII.—As the highest excitement, is the greatest degree of health, it is evident that, in



disease, health is to be reproduced, by the application of such a degree of stimulant power, as is calculated to support the highest state of excitement, of which the body, at the time, is capable. Let the middle state of the excitability, for instance, be represented by 20, and the appropriate degree of stimulus, producing healthy excitement, by 20 also (vide Table); let the diminishing or increasing sum of stimulus, in proportion to the accumulation or exhaustion of the excitability, be represented by numbers, as in the annexed table. If the excitability is exhausted to 10, the sum of stimulus to be applied, in order to produce the greatest excitement, which the state of the body will allow, will be as 30. Every degree of stimulus, beyond that, will exhaust the body still farther, and every degree, below it, will retard the cure. Thus 35 degrees of stimulus will be too much, 25 too little.

XIX.—As the reproduction of the healthy state is always gradual and progressive, and is effected by the powers of life; it follows that, in proportion to the degree, in which these powers can be maintained, the cure will be accelerated. There is no other mode of supporting them, but



by an application of stimuli, proportionate to the susceptibility of impression.

XX.—As the sum of the powers, producing disease, cannot possibly be ascertained, the degree of stimulus to be applied, for the reproduction of health, must be entirely regulated by observation of the effects, arising from the application of medicines.

XXI.—As the varieties of diseases that occur, from the highest degree of accumulation, to the lowest degree of exhaustion, of excitability; so is the variety, in the degree of stimulus, necessary to be applied, for the cure.

XXII.—THIS variety is of very great extent. The usual mode, therefore, of prescribing certain fixed doses of medicines, in every disease, whatever may be the degree of it, is and must be nugatory and inefficacious; excepting when these doses happen, by mere chance, to correspond with the state of the excitability.—In ascertaining these degrees, and proportioning the stimuli, consist the judgment of the physician.

XXIII.—If, for example, opium, æther, volatile alkali, the preparations of mercury, wine,



bark, &c. exhibited in the usual doses, do not produce effects, which indicate an approximation to health,—such as a diminution of frequency, \* and an increase of strength, in the pulse, a coolness of the skin, moisture of the tongue, refreshing sleep, and the other familiar signs of increasing excitement,—it is evident that the doses are insufficient, and should be increased, until these effects are produced.

XXIV.—THE doses should be repeated, in such a manner, as to maintain the highest degree of excitement, of which the body, at the time, is capable. But in proportion as the excitability accumulates, or the body approaches to the state of health, the doses should be gradually and proportionally diminished, until at length, health being established, nothing more than the action of the ordinary exciting powers is required.

XXV.—ALL the diseases enumerated by Brown, as diseases of accumulation or direct debility, with perhaps the single exception of scurvy, are diseases of exhaustion. Typhus, Inter-

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\* There is sometimes a peculiar slowness, which is equally a sign of debility, with a quickness of pulse. Vide Case 8th.



mittents, Dysentery, and some other diseases, as they appear to be occasioned by exposure to cold, and moisture, a deficiency of nutriment and of other stimuli, have been ranked, by him, in the class of diseases of accumulation. But as the sum of the powers, which are concerned in the production of any particular disease, cannot be ascertained, the nature of it can only be determined by the effects of the stimulant powers, applied for the cure. And, as the cure of these diseases depends upon the application of the most powerful stimuli, it necessarily follows that, they are diseases of indirect debility.

THIS error seems to have arisen from an opinion, that upon the abstraction of stimuli from (or in the words of Brown, the application of directly debilitating powers to) a body in a state of exhaustion, the irritability would accumulate; or that direct would be superinduced on indirect debility. But this opinion is evidently erroneous. If from a person labouring under plague, malignant fever, or gangrenous sore throat, all the usual remedies are withheld, and only cold water given, no accumulation of the excitability will take place; but on the contrary, the exhaustion will rapidly proceed, to the extinc-



tion of life. If a person, previously exhausted by exposure to excessive heat, drinks largely of, or plunges himself into cold water, the exhaustion will not be removed; but on the contrary, those greater degrees of it produced, constituting Tetanus, Spasms of the stomach, &c. And that these are all diseases of indirect debility, the mode of cure, which consists in the application of a very high degree of stimulant power, is a sufficient proof. Gout is a familiar instance in point. The state of body liable to this disease, is produced by a long continued application of food and drink, stimulant in too high a degree. Let a gouty person be exposed to cold and moisture, and a paroxysm will readily be produced. Let him suddenly refrain from his usual quantity of food and drink, his stomach or head will be affected; and the most powerful stimuli, as *Æther*, Brandy, &c. will be requisite to relieve him.

XXVI.—HENCE it follows that, in diseases of exhaustion, the irritability does not accumulate upon the abstraction of stimuli; but on the contrary, the state of exhaustion is, thereby, increased.



XXVII.—It follows also that, in the production of Typhus, Intermittents, Dysentery, and such other diseases as have appeared to arise from exposure to cold, moisture, &c. and have therefore been ranked by Brown, among the diseases of direct debility, the body must have previously been in a state of exhaustion. By a subduction of exciting powers, from a body in such a state, the previous degree of exhaustion must be increased, and the diseases of that state consequently induced.

XXVIII.—Most of the diseases of exhaustion appear to be produced in this manner.

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#### CHAPTER IV.

OF DISEASES DENOMINATED BY BROWN DISEASES OF EXCESSIVE EXCITEMENT.\*



XXIX.—As there are three states of the excitability, (v. 1, 2, 3,) so there are three corresponding states of excitement.

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\* Vide Lynch's Table, prefixed to Beddoes's edition of Brown's, Elements of Medicine.



1st.—THE state of diminished excitement, from a *deficient* application of stimuli, corresponding with the state of accumulation, or direct debility.

2dly.—THE state of high excitement, from a *due* application of stimuli, corresponding with the middle state of the excitability, or health.

3dly.—THE state of diminished excitement, from an *excessive* application of stimuli, corresponding with the state of exhaustion, or indirect debility.

XXX.—ALTHOUGH the stimulant powers may be applied, in an excessive degree, to the middle or healthy state of the excitability, it is evident that excitement never can be excessive; for every degree of stimulant power, greater than is necessary to produce health, must occasion a degree of exhaustion proportionate to the excess (v. 3); and every degree of stimulant power, less than is necessary to produce health, must occasion a degree of accumulation, proportionate to the deficiency. (v. 1.)

XXXI.—THERE are, therefore, no diseases of excessive excitement. From whence it follows



that those, which have been so denominated by Brown, must be diseases, either of direct, or indirect debility (vi.)

XXXII.—THAT they are all diseases of indirect debility, seldom constituting a very high degree of exhaustion, is proved, both by the powers that are known to induce them, and the remedies that are found most successful in their cure.

CATARRH, pneumonia, acute rheumatism, and other diseases of this class, are occasioned by the application of a considerable degree of heat, after the body has been previously exposed to cold;—or *vice versa*. The temperature of warm rooms is, in general, greater than is sufficient to support healthy excitement. If the body therefore has been previously exposed to a considerable degree of cold, the irritability must be accumulated (v. 1); and the application of a high degree of heat, to a body in that state, must inevitably produce exhaustion.

If, on the contrary, a person has been previously exposed to a degree of heat, beyond what is necessary to support healthy excitement,



and cold be suddenly applied, the same effects will be produced (xxv.)—In most of these diseases, a local affection takes place, which evidently arises, from some parts being more exposed to the exciting powers, than other parts of the body ;—as the mucous membrane of the nose and fauces, in catarrh ; the bronchiæ and lungs, in pneumonia ; and the extremities, in rheumatism. The mode in which the cure of these diseases is effected, viz. by warmth, small quantities of opium, wine, &c., and the application of fomentations, rubefacients, and blisters to the local affection, is a proof that they are diseases of indirect debility.

THE langour, inability to motion, want of appetite, nausea, costiveness, &c. which occur in these diseases, are evidently incompatible with such a state, as that of excessive excitement. Could such a state possibly exist, the functions of the body would be invigorated, in the exact degree of the excess.

IN convalescence from these diseases, it is well known, that a greater degree of nutritious food, wine, and other stimuli, are necessary, than in a



state of health. But if they depended upon a state of excessive excitement, the cure could not otherwise be effected, than by persevering in an abstraction of stimuli, until health was re-established. The exhibition of stimulant powers would produce an increase of disease.

SMALL-POX and measles are of this kind; and to be cured only by stimulant powers.

THE mode in which Brown fell into error, in considering some diseases as depending upon a state of excessive excitement, was probably this. Having still, (altho' contrary to one of his own fundamental principles, "that all powers applied to living bodies are stimulant,"—in other words "that there is not a sedative in nature,") retained an idea, that those medicines, called evacuants, are debilitating; and having found that, under a moderate application of them, together with the other parts of the usual treatment, patients generally recovered from these diseases, he was led to conclude, that they depended upon a state of excessive excitement.

THE mode of action, however, of those medicines, seems to have been universally misun-



derstood. As all objects, capable of producing an effect upon living bodies, are stimulant (x.), those which produce evacuations must necessarily be included. If a certain quantity of calomel, infusion of senna, salts, or any other cathartic medicine, be taken, its immediate effect, like that of opium, camphor, or any other acknowledged stimulus, will be an increased strength of pulse, a sense of general invigoration, and all the usual symptoms of increased excitement, in proportion to its degree. And this will continue as long as the operation of the medicine. If the dose is sufficient to produce a high degree of excitement, a discharge of natural fœces, when these have previously been long retained, will be the consequence. Is there any other mode, by which the intestines may be made to perform their functions, and to expel their contents, but by increasing their excitement? Certainly not.—But if a greater quantity be given than is necessary, to enable the intestines to expel, with facility, their contents, a new disease is produced;—indirect debility is established; and a discharge of mucus, and sometimes of blood, accompanied by disagreeable sensations, follows; symptoms which are only to be removed by opium, and other stimuli.—It is not therefore with an intention of



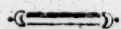
evacuating, that those medicines should be given. In diarrhoeas, and incipient dysentery, where the intestines are evidently in a state of indirect debility, calomel, castor oil, and all the other medicines called cathartics, instead of increasing, invariably diminish the number of evacuations; and, by a judicious repetition of the doses, cure the disease. Those medicines, therefore, do not effect cures, by their EVACUANT, but by their STIMULANT POWERS.

As opium, æther, volatile alkali, wine, &c. when given in an improper manner, diminish; so the medicines, usually denominated evacuants, when given in a proper manner, increase the excitement.

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## CHAPTER V.

### LOCAL DISEASES.



XXXIII.—THE principles laid down in the preceeding pages, respecting diseases, which affect the whole body, equally apply to those, which affect only a part.



XXXIV.—As diseases, which affect the whole of the body, depend upon, either accumulation or exhaustion of the excitability (vi.); the same law must apply, with equal force, to any of its parts, separately considered.

XXXV.—If that proposition (vi.) be true (as it undoubtedly is) it follows, that local diseases never depend upon a state of excessive excitement. Inflammation, therefore, a local disease of the most frequent occurrence, does not, as has been generally supposed, depend on such a state; but, like the diseases of the whole body, which have been denominated by Brown diseases of excessive excitement, and by others inflammatory, is, on the contrary, a disease of diminished excitement, from indirect debility; excepting in the single case of inflammation, produced by the exposure of any particular part of the body to a high degree of cold. As this proposition is of considerable importance, it may be necessary to enlarge upon it. The symptoms of local inflammation are heat, pain, redness, swelling; and, in secreting surfaces, an increased secretion. It is evident that, in inflammation, an enlargement of the vessels takes place without a proportionate degree of contraction; and



that an increased quantity of blood flows into them.—As the effect of stimuli, upon the muscular fibre, is to produce contraction; and as the blood is the appropriate stimulus of the arteries, it is evident that, if these were diseases of excessive excitement, an increased contraction of the vessels, or a diminution of their diameters, in proportion to the increased quantity of the blood, would take place. If the vigour of a muscle is ascertained, by the force of its contraction, it is clear that every increase of vigour should be attended with an increased force of contraction. If local inflammation, therefore, was a disease of excessive excitement, there would be a diminution, instead of an increase, of the quantity of blood, in the vessels of the part. But that there is actually an increased quantity of blood, in the vessels of the parts inflamed, is evident in ophthalmia, and those inflammations, which are produced, in the course of experiments, upon the transparent membranes of animals. The same idea too is farther confirmed, by the mode of cure, which is universally adopted, and found successful, in those diseases. The application of blisters, and inhalation of warm steam, in pneumonia, catarrh, and inflammatory sore throat; of vinegar, and ardent



spirits, in burns, and scalds ; warm fomentations, and poultices, in phlegmon ; solution of volatile alkali, tincture of cantharides, and the different preparations of camphor, in the inflammation of the joints, in acute rheumatism ; tincture of opium, and solutions of corrosive sublimate in ophthalmia ;—are all so many proofs of the truth of this proposition.

XXXVI.—In catarrh, pneumonia, acute rheumatism, phrenitis, and those other diseases of indirect debility, which have been called diseases of excessive excitement, the local affection, which arises from the parts being more exposed to the action of the exciting powers, differs from the general, only in being greater in degree.

XXXVII.—In local, therefore, as well as general disease, the causes which produce, and the powers which cure them, tend equally to prove, that a state of excessive excitement cannot possibly take place, either in the whole, or any part of the body ; and that the diseases, usually considered as dependent upon such a state, are almost, without exception, diseases of indirect debility.



XXXVIII.—Local diseases, like those of the whole body, are to be cured by an application of stimulant powers, in a degree proportioned to the state of the excitability.



# TABLE

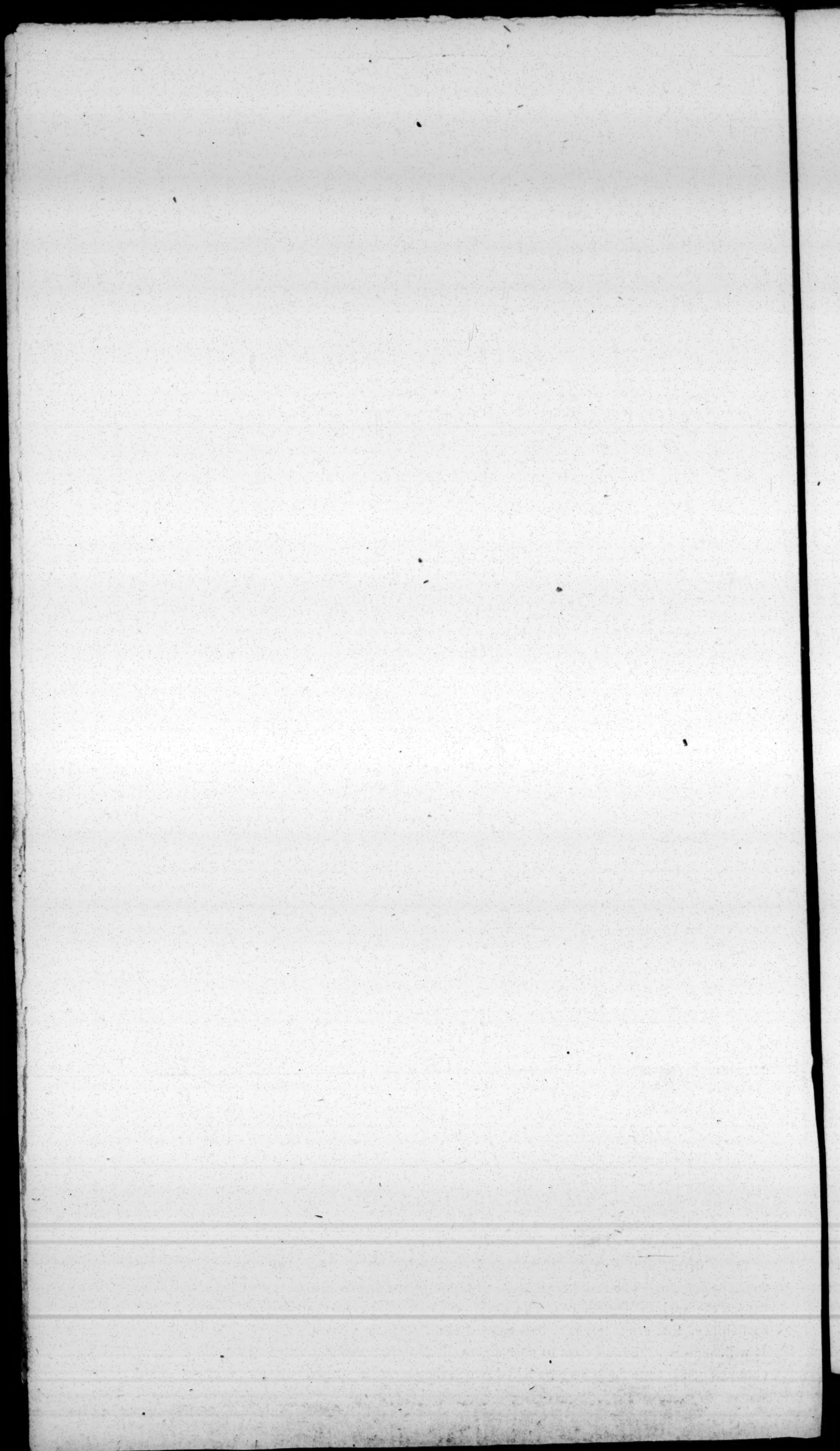
OF PROPORTIONS TO BE OBSERVED IN THE APPLI-  
CATION OF *STIMULI* TO THE *EXCITABILITY*.

Diseases of accumulation, in their various degrees.	{	40 or Death.	}	Degrees of stimulus to be applied, to produce the greatest possible excite- ment.
		39 — 1		
		38 — 2		
		37 — 3		
		36 — 4		
		35 — 5		
		34 — 6		
		33 — 7		
		32 — 8		
		31 — 9		
		30 — 10		
		29 — 11		
		28 — 12		
		27 — 13		
		26 — 14		
		25 — 15		
Small degrees of accumu- lation, not constituting what is commonly called disease.	{	24 — 16	}	Appropriate degrees of stimulus.
		23 — 17		
		22 — 18		
		21 — 19		
Middle state of the excita- bility.	{	20 — 20	}	Appropriate degrees of sti- mulus, producing healthy excitement.
Small degrees of exhausti- on, not constituting what is commonly called dis- ease.	{	19 — 21	}	Appropriate degrees of sti- mulus.
		18 — 22		
		17 — 23		
		16 — 24		
Diseases of exhaustion, in their various degrees.	{	15 — 25	}	Degrees of stimulus to be applied, to produce the greatest possible excite- ment.
		14 — 26		
		13 — 27		
		12 — 28		
		11 — 29		
		10 — 30		
		9 — 31		
		8 — 32		
		7 — 33		
		6 — 34		
		5 — 35		
		4 — 36		
		3 — 37		
		2 — 38		
		1 — 39		
		0 or Death.		

## EXPLANATION OF THE TABLE.

THIS Table is meant merely to convey a general idea of the man-  
ner, in which stimuli should be increased, or diminished, in propor-  
tion to the exhaustion, or accumulation of the excitability. It is not  
supposed, that the degree of the excitability, or the proportion  
of stimulus, represented by the figures in the table, can be ascertained  
in any other manner, than by observation of the effects produced by  
their application. The range of figures, is by no means sufficient to  
express the various degrees of accumulation and exhaustion of the  
excitability, that can take place, between the middle state and death.  
It will, however, be sufficient to give a general idea of the mode of  
cure, deducible from the principles laid down in the preceding pages.







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# C A S E S,

*By Dr. YATES.*

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## CASE I.

FRANCIS LOTE, aged 35, was admitted into the General Hospital, at Calcutta, on the 1st of May, 1796.—At that time, he complained of general pains over his body, with all those symptoms which indicate an exhausted constitution. On the 15th of May, he came under my care. At that time, I found his mouth sore, from the use of Mercury; and he was much purged and griped. On the 3d of June, when I discontinued attending him, his complaints were considerably relieved, by the use of Opium. On the 21st of August, he again came under my care, in a state of extreme

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debility, with excessive purging, and bloody stools. During the whole of this time, he had remained in the Hospital; but, from necessary arrangements, had fallen, during intervals, under the care of other gentlemen. During the last of these intervals, he was so extremely weak that, in the act of vomiting, the right clavicle was fractured, which occasioned much pain. On that, and the two successive days, I gave him eighty drops of Tincture of Opium, morning and evening. On the 24th, in the morning, as no effect seemed to be produced by the medicine, it was ordered to be given three times a day. At one o'clock P. M. the same day, I was called to him; and found him complaining of violent pain in the bowels, with incessant purging. He had taken the 2d draught about an hour before. The draught was ordered to be immediately repeated. At 9 P. M. he was not relieved; upon which 150 drops of Tincture of Opium was prescribed immediately, and ordered to be repeated at 12 o'clock. A glyster, with 200 drops of Tincture of Opium, was also given. On the 25th he was easier. The glysters, with 200 drops of Tincture of Opium, were continued every three hours, and the draught, with 150 drops, was repeated in the evening. On the 26th, in the morning, he



was nearly in the same state ; the glysters were continued, and the draughts ordered 3 times in the day. At 9 P. M. I found that the relief from the glysters, was merely temporary, that he had stools every hour, and no inclination to sleep. Four hundred drops of Tincture of Opium were ordered in glyster, every two hours, and a fourth draught of 200 drops to be taken at 12 o'clock. On the 26th he was easier ; he had six or seven stools in the night, with less griping. Slept better than he had done, since he came to the hospital. His pulse beat about 90 strokes in the minute ; previous to this, his pulse had been very quick and small, but the state of it was not particularly noted ; he had 150 drops of Tincture of Opium in the morning, and 200 at 12 o'clock. Four hundred drops were ordered in glyster, every three hours. One P. M. He had 5 stools since morning ; the glysters were continued ; and a draught of 200 drops ordered to be taken at 4 o'clock. At 8 P. M. he had 13 stools since the last visit, with a good deal of pain in his bowels. He had not slept ; was ordered a draught of four hundred drops of Tincture of Opium at ten o'clock. August the 28th, he had slept a little the preceeding night ; bowels were easier ; pulse 80 ; had draughts of



200 drops every two hours, with the glysters occasionally. At 2 P. M. his pulse was 90; he was in other respects as before; had taken three draughts. The draughts of 200 drops were repeated every hour. At 9 P. M. his pulse was still 90; he had dosed much, but had no sound sleep; he had taken 4 draughts. A draught of 400 drops was ordered to be given at 12 o'clock. On the 29th, his pulse was 80, and strong; he had 3 stools, with less pain; but slept little; the draughts of 200 drops were continued every hour.—2 P. M. had incessant stools since morning, with violent pain of the bowels; glysters of 400 drops were ordered every hour. 8 P. M. had four stools since 2 o'clock; had taken only one draught; his bowels were easy after the glysters; pulse 112.—Eight draughts, with 200 drops each, were ordered to be placed at his bed-side, of which he was directed to take one every hour, during the night, with glysters of 500 drops every hour, in the intervals between the draughts.—30th, had six stools during the night. He was free from pain, and his pulse 80 and full; the draughts were continued every two hours, and the glysters occasionally. 9 o'clock P. M. he had eight or ten stools since morning, with some griping; pulse 90. The



draughts were increased to 300 drops every two hours; and the glysters continued.—31st, had passed a good night; his pulse was 90; he had five stools; his medicines were continued as the day before. In the evening, he was nearly the same; no alteration was made in his medicines.—September the 1st, he had six stools during the night, with griping: did not sleep; had no blood in his stools, for two days; the draughts of three hundred drops were given every hour, and the glysters of five hundred drops, were continued as before, and repeated according to his own discretion, as the tenesmus and griping might indicate.—8 P. M. he was much worse; had eight stools during the day, and no sleep; his pulse was 120, and he was so extremely weak, that I considered him as approaching to dissolution. Draughts of 500 drops each, were ordered to be given every hour, and the glysters of 500 drops, to be continued as before.—2d, he had not slept, but felt himself better; pulse 104; his medicines were continued, in the same manner during the whole of that day. On the 3d, his pulse was 100; he had slept well the preceeding night; his medicines were continued. On the 4th, he was much better, had dosed much, and had only two stools; the draughts



were directed to be taken occasionally, as circumstances might indicate.—This plan was continued until the 14th, at which time his mouth became sore, and the flow of saliva was increased, as if he had been using mercury. The draughts and glysters were, from that period, ordered to be repeated occasionally, according to his own discretion. On the 22d, the discharge of saliva continued in the same state.—On the 26th, he was better; and his bowels easy.—29th, he continued without pain, with two or three stools in the day, and his strength increasing. On the 30th, when I discontinued attending him, he had only two stools in the day, without pain; and felt a returning appetite. Being a sensible and steady man, he was, at that time, allowed to proportion the strength and frequency of the draughts and glysters, according to his own judgment.—During the whole of the time that he was under my care, he had an allowance of wine, from one to two or three bottles in the 24 hours, according to exigency. — From his good sense and punctuality, I have a perfect reliance upon his having conformed to my orders, in every particular, as far as it is possible for patients, in an hospital, to do.



THE treatment of this case may give some idea of the manner in which stimuli should be increased, in diseases of great exhaustion, until the quantity is ascertained, which is capable of producing the highest degree of excitement. It will shew the very great quantity of the most powerful stimuli that may be necessary, in some diseases of that state, in order to effect a cure; and is also an example of the mode in which the doses ought to be repeated. The foreness of the mouth, and the increased flow of saliva, evince that there is a greater similitude between the action of opium and mercury, than has yet been acknowledged. The foreness of the mouth and spitting commenced, after the quantity of opium was diminished. Upon resuming the draughts, the mouth became less sore, and the flow of saliva decreased; and upon leaving them off, the foreness and spitting increased. This was repeatedly remarked by the patient himself. It should be observed, in order to prevent a rash imitation, where the circumstances are not alike, that the tincture of opium employed, upon this occasion, was much weaker than what is usually made in Europe; that a very great degree of exhaustion had taken place; and that the doses were gra-



dually increased, from eighty drops to five hundred.

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## CASE II.

— DE HAES, aged 40, was admitted into the General Hospital, at Calcutta, on the evening of the 26th of August, 1796, with dysentery of eight days standing. He had about 30 stools in the day, containing slime, mixed with blood; and complained of much pain in his bowels. His pulse was 90 in the minute. At 9 o'clock P. M. he was ordered to rub in, half an ounce of Mercurial Ointment, with half a drachm of Calomel, and to take a hundred drops of Tincture of Opium, to be repeated at 12 o'clock.— 27th, the Ointment was omitted by neglect. He continued in the same state. Half an ounce of Mercurial Ointment, with a drachm of Calomel, was ordered to be rubbed in immediately, and repeated at 12 o'clock. A hundred drops of Tincture of Opium was desired to be given every two hours.—1 o'clock P. M. he had ten stools since morning, with blood and slime. Had taken only two draughts. The Ointment



was ordered to be repeated at 4 o'clock, a glyster with two hundred drops of tincture of opium to be given every two hours, and one bottle of wine to be taken in the course of the evening.—8 P. M. pulse 100. He had six stools with less pain. The ointment was rubbed in, and glysters were regularly administered. The ointment was ordered to be again repeated at 9 o'clock, the glysters to be continued, a draught of a hundred and fifty drops of tincture of opium to be given immediately, and to be repeated at 12 o'clock; and a bottle of Madeira to be given during the night.—28th, he had vomited several times during the night, but had only one stool; pulse 75. The Ointment was ordered to be repeated, the glysters to be omitted, a draught with one hundred drops of tincture of opium to be given, and the wine to be continued.—2 P. M. pulse 72; vomited twice since morning; he had only two stools, and the pain was less; he slept a little. The ointment, draught, and wine were repeated.—9 P. M. pulse 84, had vomited twice, and had six stools. He complained of vertigo; the ointment was repeated, a draught of two hundred drops of tincture of opium was ordered to be given at 12



o'clock, and the wine to be continued.—29th, his pulse was 80 and full. He had ten stools, consisting of slime and blood. The ointment and wine were continued, and a draught, with one hundred drops of tincture of opium, ordered every two hours.—9 P. M. his pulse was 80, he had six stools, and frequent vomiting, particularly after taking the Madeira wine. The ointment was repeated, two hundred drops of tincture of opium ordered every two hours, and port wine to be given in lieu for the Madeira.—30th, pulse 74. He had two stools, vomited only once, and slept a little. The ointment and wine were repeated, and the draughts with two hundred drops, continued every third hour.—9 P. M. he had several stools in the course of the day, with much pain. No return of vomiting; pulse 100. The ointment was repeated with two drachms of calomel. Draughts of two hundred drops each, were ordered to be continued every two hours. The port wine became disagreeable to him, and Madeira was again given.—31st, pulse 84; had only two stools, and slept well. His mouth was a little sore. The ointment was repeated with one drachm of calomel, and the draughts were continued every third hour.—9 P. M. pulse 80, he had eight stools. His



skin and tongue were moist, and he began to spit a little. He had slept some during the day. The ointment, draughts, and wine were continued. September the 1st, pulse 76, he had only one stool, slept well, and was better in every respect. The ointment was repeated, with half a drachm of calomel; and the draughts and wine were continued.—8 P. M. continued better. He had no pains, excepting in going to stool. The discharge of saliva was considerable. He had slept during the day. The ointment was omitted. A draught of two hundred drops of tincture of opium was ordered at 12 o'clock; and the wine was continued.—2d, he had only one stool during the night; pulse 68; the ointment was repeated without the calomel; and the wine continued.—8 P. M. he had slept during the day, and spit considerably; the draught of two hundred drops was repeated at 12 o'clock, and the wine continued.—3d, he had slept well, and had no stool; the ointment was entirely omitted; and the evening draught and wine were continued.—From that period the wine, and draughts occasionally, were continued until the 30th of September, at which time I left him in an advanced state of convalescence.



THE great quantity of mercury that was used, in this case, in conjunction with opium and wine, shew what a high degree of stimulant power may sometimes be required to effect a cure, in the state of exhaustion, which constitutes dysentery.

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### CASE III.

JACOB MEYER, aged 35, was admitted into the General Hospital, at Calcutta, on the 23d of August, 1796, with pain of bowels and frequent stools. These complaints appeared at first to be slight; and seemed, for some time, to give way to ordinary doses of calomel and opium. On the 29th he became worse; and the same treatment was persevered in, but without effect. On the 1st of September, calomel and opium, of each two grains, every second hour, and a draught of eighty drops of tincture of opium, twice a day, were prescribed. The symptoms still increased in force. On the 3d, he had very frequent stools, with violent pain in the bowels; and could not bear the least pressure on the caput coli. His pulse was 132,



thirst extreme, tongue furred; and he had no sleep. Half an ounce of mercurial ointment, and one drachm of calomel were rubbed in. The calomel and opium were given every hour. On the 4th his pulse was 120, he had vomited through the night, tongue brown and furred. The ointment was rubbed in, and to be repeated at 12 o'clock; the pills of calomel and opium were continued.—9 P. M. pulse 130; he had several stools during the day; tongue dry; he thought that he spit more than usual, but his mouth did not seem affected; one ounce of ointment and two drachms of calomel were rubbed in, and the pills were continued.—On the 5th his pulse was 120, he complained of violent pain in his bowels; the medicines were continued as the day before.—6th, his pulse was 100; he complained of violent pain on pressing the arch of the colon, had frequent stools with profuse perspiration, and appeared to be much alarmed and dejected; no increase of the quantity of saliva; the ointment and pills were continued in the same manner.—7 P. M. his pulse was 124; in other respects as before; he was immersed in the warm bath, and afterwards had one ounce of ointment, with half an ounce of calomel rubbed in; the pills were continued.



—7th, pulse 112; complaints were nearly as the day before. He had an eruption upon the skin, such as usually appears, when salivation cannot be produced, after having used a large quantity of mercury. The warm bath, with the ointment and calomel, were repeated; and the calomel in the pills was increased to four grains.—8 P. M. pulse 128, he had incessant stools, accompanied by violent pains of the abdomen; his tongue was brown and furred, and skin covered with profuse moisture. The bath was ordered to be repeated, and an ounce of ointment, with two ounces of calomel, to be rubbed in, immediately after the bath. A scruple of calomel and six grains of opium were ordered to be given every second hour.—8th, pulse 112; he had incessant stools, with violent pain. He felt ease from the warm bath; had taken five doses of the calomel and opium. The warm bath was ordered to be repeated three times in the day, the ointment and calomel to be again rubbed in, and the pills to be continued.—8 P. M. pulse 120, there was no increase in the quantity of saliva from the mercury, he had incessant stools with blood, and was extremely debilitated. Had taken six doses of the calomel and opium in the course of the day. Could not bear the



least pressure upon the colon. The warm bath was ordered to be repeated, and afterwards two ounces of ointment, with four ounces of calomel, to be rubbed in. The calomel and opium to be given every hour.—9th, pulse 112 and small. He had stools innumerable. The medicines were continued. 9 P. M. his pulse was almost imperceptible, and extremities cold. The medicines were continued as far as circumstances would admit. 10th at 1 o'clock A. M. he expired.

THE body of this patient was either not opened, or the appearances upon dissection were neglected to be noted down, at the time; and were consequently forgotten. But from the analogy between this case and all the others, in which the mouth could not be affected, in the usual manner, by mercury, there can scarcely be a doubt that the colon and rectum, if not the whole of the abdominal viscera were in a state of local disease. The cases of dissection, described by Mr. Maclean, will explain this point more fully. Of many cases of dysentery, and other diseases, that were opened by us, in which salivation could not be produced by mercury, there was not one without confirmed local disease



of the viscera, either of the thorax or abdomen, or both.

THOSE, who may look upon the quantity of medicine here prescribed as extraordinary, should consider, that when a patient is evidently incurable, by the common practice, it becomes the duty of the practitioner to depart from it. An opposite conduct is dictated, much more by a sly regard to reputation, than an earnest and conscientious desire of saving the lives of patients. Nothing can be more easy than to take shelter under customary forms.





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# C A S E S,

*By Mr. MACLEAN.*

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## CASE IV.

EXTRACTED FROM THE JOURNAL OF THE ENGLISH  
EAST INDIA COMPANY'S SHIP NORTHUMBERLAND.

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MR. ———, Cadet, aged 17,—tall, of a slender make, and consumptive habit; June 13th, 1791, he had, since the commencement of the voyage, in April 1791, been much indisposed with sea-sickness; for the last ten days, had feverish symptoms, and for two days a diarrhoea; his skin was hot and dry, tongue foul and parched, pulse quick and small. —He was ordered to take two table spoonsful every hour of a mixture, consisting of a hundred drops of tincture of opium, and one pint



of water, with an ounce of cinnamon water.—In the evening, there was a remission of the diarrhœa; but it returned on the 14th, the mixture having been discontinued in the night.\* One grain of opium was ordered to be taken every hour.—15th, after having taken five pills, his skin became moist, his pulse full, he fell asleep (about 8 o'clock P. M.), and continued free from diarrhœa all night. He had perspired profusely, and his tongue and lips were less parched;—having complained of thirst, he was ordered wine and water for drink.—16th, the opium having been injudiciously discontinued on the 15th, all his symptoms returned; his tongue was foul and parched, his pulse quick and small, his skin hot and dry; he was considerably purged, and had much thirst; one grain of opium was ordered to be taken every hour.—On the 17th, the pills having been again imprudently discontinued in the night, he appeared rather confused, his strength was much exhausted, and his complaints remained the same. The pills were ordered to be repeated, and continued through

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\* This subduction was improper. In every case, as well as in this, it will be found detrimental.



the night.\* He was allowed mutton or chicken broth, and sago alternately, as his fancy directed; and wine and water for drink.—18th, the pills were regularly taken, day and night, excepting in the intervals of sleep; his pulse was slower and more full; and he was in other respects better, but weak; his skin was covered with a healthy moisture; he complained of some forenefs of his mouth and throat; he had eat some biscuit, soaked in tea, for breakfast, and was ordered sago for dinner and supper; the pills were continued.—19th, his pulse was stronger, an eruption appeared on his face, such as often happens after taking opium or mercury.—He complained that his mouth was very sore, and was ordered to have a gargle; the pills, &c. were continued as before.—20th, he was better, the pills, sago, &c. were regularly taken, and he drank plentifully of wine and water; his thirst was dimi-

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\* The confusion of head, and other bad symptoms, which frequently follow the exhibition of opium, are, as I have uniformly observed, owing to the medicine not being repeated at proper intervals. In every case, which requires so high a stimulant power as that of opium, the exhibition of the doses should be regulated by principle.—They ought to be repeated in the night, as well as in the day.—But the difficulty of doing this, which may arise from the ignorance or carelessness of practitioners, the prejudices or obstinacy of patients, or the negligence of attendants, has often occasioned bad consequences, which have been erroneously imputed to the opium.



nished; the pills and regimen were ordered to be continued as before.—21st, he was stronger, and declared himself in every respect better; the only complaints that remained were a soreness of the mouth and fauces, and some swelling of the face; the pills, &c. were continued.—22d, soreness of the mouth and throat were troublesome; he spit more freely than usual, the increased flow of saliva somewhat resembling that which takes place after the use of mercury.\* He appeared in other respects so much better, that the pills were discontinued.†—23d, he had slept tolerably; but his skin was hot, and he complained of debility. No medicines were prescribed.—24th, slept ill, and was much harassed with a cough and spitting; his pulse was quick and irregular, and he was oppressed with clammy sweats.—half a grain of opium was prescribed every half hour, and bark in wine was given in the intervals. Regimen as before. From that period to the 27th, his medicines were punctually

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\* I cannot say, at this distance of time, whether there was any ulceration of the gums, having omitted to notice it in the Journal.

† This is the third error that was committed in the treatment of this case, in suddenly withdrawing a stimulus, to which the patient had been for some time accustomed, and before health was completely re-established.



administered; his cough, spitting, and clammy sweats were diminished; his pulse, skin, and tongue were nearly in a healthy state; and the diarrhœa entirely stopped.—28th, he was stronger, had a good appetite, and could sit up; his medicines &c. were continued. After this, it was thought unnecessary to make daily reports in the Journal. His medicines were continued for some days, and gradually left off as he approached the healthy state.

IN the above case, the medicines were regularly given, either by a friend of the patient's, who took a particular interest in his welfare, by Mr. RIDGES, then surgeon's mate of the Northumberland, or by myself.—The relapses which always took place, upon suddenly laying the medicines aside, or with-holding them even for a night, shew the necessity of repeating the doses, with the utmost regularity and care. The soreness of the mouth, together with the increased flow of saliva, after the use of opium, was not a peculiar circumstance. Upon that subject, the following remark appears in my Journal:—"In many cases, in which opium was  
"freely given, for a length of time, a considerable increase in the flow of saliva, was observed to take place, and to continue long



“after the medicine was laid aside. But in  
“cases, where a considerable spitting had before  
“existed, opium as well as mercury had the  
“effect of lessening it.” These facts, with  
the explanation of them, will be considered in  
another place.

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### CASE V.

EXTRACTED FROM THE JOURNAL OF THE ENGLISH  
EAST INDIA COMPANY'S SHIP NORTHUMBERLAND,

ENSIGN G—, 36th regiment, a stout, healthy man, about 25 years of age, went up, in a fit of playfulness, to the main-top-mast-head, on the evening of the 10th of June, 1791. After having remained there a short time, he fell asleep upon the cross-trees, and about midnight fell down upon the quarter-deck. In the fall, he first struck with his hip, as was supposed, against an iron stauncheon in the main-top, which bent; he then came upon the mizzen-stay, which took him, as far as could be collected from the confused intelligence of some people upon deck, about the middle of the



abdomen; and from the stay he fell upon the quarter-deck. He was, as may well be supposed, entirely insensible; much blood was discharged from his mouth, nose, ears, and even from his eyes; in this state he was carried down to his cabin; upon examination, no fracture was found; the whole consequences of the fall seemed to consist of contusions or concussion, the marks of which were very general over his body. His pulse was small, but regular. There happened to be in the ship four professional gentlemen, besides myself. They all seemed of opinion, that Mr. G. should immediately lose blood. Some of them insisted upon it, with much earnestness; and the bye-standers, knowing that to be the common practice, joined in urging a compliance. I replied, that, however common the practice might be, I was convinced of its being entirely wrong; and that I would not, even with the sanction of a majority, do what I was certain must endanger the life of my patient. But that if any of the gentlemen present, chose to take charge of Mr. G——, they might have an opportunity of bleeding him, with propriety, if convinced in their conscience that it was right; and I would give them my opinion when asked. This offer was not accepted. Mr. G. was not bled. In



the course of two hours from the accident, he became sensible; was sick at stomach, and vomited. This, as a symptom of concussion usually enumerated, would farther indicate, according to the hypotheses of the schools, and the practice of hospitals, copious blood-letting. That, however, did not alter my plan. I was aware indeed that, if the patient died, his death would be attributed to the non-observance of customary forms. But I was also persuaded that, if he lived, after having been copiously bled, it would be in spite of the blood-letting. He was my friend; as well as my patient; and in defiance of obloquy, I determined to do what appeared to me best, in order to save his life. Externally the most powerful stimulating substances were applied, in concurrence or succession. For four days he could not move in bed, without excruciating pain. He had small opiates occasionally, wine, and nourishing food; and once half an ounce of sal catharticus amarus, so as to produce one stool. Nothing more was done. He had not an unfavourable symptom. The pains gradually abated; and on the eighth day, from the fall, he was carried upon deck in a chair.

THAT there was absolutely a considerable degree of concussion in this case appears, from



his having wholly lost the sight of one eye, although, when the marks of contusion had disappeared from that side of his face, the eye looked almost as well as the other. He complained at times of headach, which was always relieved by wrapping up his head in warm cloths.

THE issue of this, as well as of every other case of contusion or concussion, which I have seen treated, either in or out of hospitals, convinced me, that blood-letting is not only unnecessary but pernicious. In private practice, I fear, a mean and criminal compliance with vulgar prejudice, in order to conciliate vulgar favour, too often influences practitioners, whose better judgments would lead them to reject entirely so deplorable a remedy:—a remedy of which the use is not only contrary to all principle; but which, so far as I know, cannot adduce a single uncontrovertible fact, in proof of its utility.

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#### CASE VI.

WILLIAM HOLLOWAY, aged 22, was admitted into the General Hospital, at Calcutta, on the 3d of September, 1796, with symptoms

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of typhus fever, of several days standing. At bed time, he took two grains of opium, and six grains of colomel.—4th, he had slept a little; his tongue was parched and black; pulse 96; he had two stools on the 3d. Six grains of calomel, and six grains of powder of jallap, were ordered to be given every four hours.—5th, in addition to his former symptoms, he complained of cough and pain of breast. He had only one stool, since he began to take the powders. The powders were ordered to be repeated, and a draught, with sixty drops of tincture of opium, to be given at bed time.—9 o'clock, P. M. he had not yet taken the draught prescribed for him in the morning; the pain of his breast was more severe; he had no stool for twenty four hours; was ordered a glyster with one ounce of castor oil, and one ounce of Glauber's salts; and afterwards to take the draught.—6th, he had no stool from the glyster. His pulse was 116; his tongue furred and black, and his mouth exceedingly parched; he was a little confused, and had a slight degree of subsultus tendinum. Two ounces of the common infusion of senna was ordered every hour, and a glyster, double the strength of the former, every second hour, until he should have a stool or two.—7 o'clock



P. M. he had one copious stool, after having taken several doses of the infusion, and two or three glysters. Four grains of opium and four grains of calomel were ordered to be taken at 8 o'clock, and to be repeated at 12.—On the 7th, he conceived himself better; pulse 108; his tongue was still furred and skin hot. He was allowed twelve glasses of wine in the day. Ten grains of calomel, and fifteen grains of powder of jalap, were prescribed every four hours.—9 o'clock, P. M. his skin was very hot, pulse only 100; he had taken three of the powders, and had 3 stools; he complained that his tongue was sore. It was still furred, and black in the middle. He was ordered a draught, with a hundred drops of tincture of opium, at 8 o'clock, and again at twelve.—8th, his pulse was 100, and heat of skin more moderate; but his tongue remained foul; he expressed a wish for porter.\* A bottle of porter was allowed him;—and the wine was continued. The powders and draughts were repeated.—9th, he remained nearly in the same state; but complained of a severe cough. He had two stools. All

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\* The desire for beer or porter, is a symptom that frequently occurs, when the mouth begins to be affected, after having used mercury.



his medicines were continued as the day before, —10th, he had no cough, and rested well; his pulse was 112; he had no stool; two ounces of infusion of senna were ordered to be taken every hour through the day, and the draughts to be repeated at night.—11th, his pulse was 116, tongue very foul, and mouth parched; he had slept but little; and had no stool since the 9th.—A glyster, with two ounces of castor oil and two ounces of Glauber's salts, was ordered to be given immediately, and to be repeated according to circumstances. The powders were given as before.—7 o'clock, P. M. his pulse was only 100; tongue cleaner, and moist.—He had one stool after having taken two glysters. He remarked that he had, for the first time, a distinct paroxysm of fever in the afternoon. The draughts were given as usual.—12th, his pulse was 92, and his skin nearly of a healthy temperature; his tongue remained a little furred; he had no stool. The glysters, powders, and draughts were directed to be given in the same manner as the day before.—13th, when I visited him, he was found asleep, seemed easy, and his skin cool. The medicines were ordered to be continued.—7 o'clock P. M. his pulse was 76; skin moist and cool; he



had two stools, and was inclined to sleep. The draughts were continued.—14th, he was not so well as the day before; his pulse was 96 in the morning, and 92 in the evening, and his tongue rather foul. The medicines were continued. On the 15th, his skin, tongue, and pulse approached nearly to the healthy standard. He expressed a desire to eat, and was ordered to have chicken broth. The powders and draughts were continued. On the 16th, he had no feverish symptom, his tongue was sore at the edges, and there was an increased flow of saliva. The powders were omitted, and the draughts continued. From that period, he was convalescent, and only took one draught occasionally at night. On the 23d, he was free from complaint, and discharged from the Hospital.—During the whole of the time, he was allowed wine and porter, as at first prescribed.

THIS case is not given as an uncommon one, either in respect to the violence of the disease, or the quantity of medicines that were prescribed. The history of it shews, that the sum of stimulant power first applied, was inadequate to effect a cure, even in a case of slight disease; for the symptoms by no means approached to



the severity of typhus gravior. In every fever, whatever be its nosological description, the same plan would have been pursued, increasing or diminishing the force of the exciting powers, in proportion to the degree of indirect debility. If such a quantity, as was used here, be necessary for the cure of mild typhus, what powerful stimuli must often be required in typhus gravior, dysentery, or plague?

THE intervals, I think, at which the medicines were repeated, are too long. The duration of the action of each dose of mercury or jallap is not, perhaps, near so much as four hours,—probably not more than one. But whatever it be, such is the period exactly, at which doses ought to be repeated.

IN this, as well as in many cases, both of dysentery and fever, I have given castor oil, jallap, and other cathartics, with a view simply to increase the excitement. In so far as they effect that, and thereby invigorate the functions of life, they are proportionally as useful as opium, æther, mercury, brandy, wine, or bark. But the purging I conceive to be proportionally as injurious a consequence, and as much a mark of indirect debility, as the headach, sickness, and



vomiting, which follow an excessive or irregular use of these substances. This subject is considered at greater length elsewhere.

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### CASE VII.

JOHN BROWN, aged 23, was admitted into the General Hospital, at Calcutta, on the 10th of July, 1796, with typhus fever—He had besides a sore leg, and chancres. His fever, although apparently slight, was very obstinate. In the course of two months, he was several times almost cured, by small and frequently repeated quantities of opium, mercury, wine, and bark, varied according to circumstances. But, seemingly in consequence of internal local affection, he as often relapsed, without any apparent cause. His fever, from continued became remittent, and from remittent intermittent. On the 24th of September, suspecting the existence of local disease, I represented to him the necessity of undergoing such a course of



mercury as to affect his mouth, to which he had hitherto expressed an insuperable aversion. He had, for some days previously, taken calomel in small doses; and had latterly two emetics, at his own request.\* On that day, he was ordered to take ten grains of calomel, and fifteen grains of jallap every four hours.—25th, he had taken three powders in the course of the day, and was excessively purged and griped through the night†. He had no fever. Two grains of opium, and four grains of calomel were directed to be taken every three hours, through the day,

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\* That tartar emetic is a stimulant of very high power is evident, from the small quantity of it, which produces the state of indirect debility, that occasions vomiting. It should be given in such a manner, as to increase and to support the excitement. But this will be found difficult, as the duration of its action seems to be even shorter than that of opium. If its action does not continue more than a quarter of an hour, might it not be repeated at such short intervals, and the doses so gradually reduced, as not to allow the establishment of indirect debility? If, when given at such a random rate, as to produce vomiting, and the most disagreeable sensations that can be imagined, medicines sometimes produce good effects, how much more useful must they be, when given according to just principles? The prejudices of patients may sometimes be turned to their advantage, by judiciously alternating stimuli, so as to humour their whims. The medical prejudices of the vulgar, are generally dictated by those of physicians. At present they are as unreasonably in favour of tartar emetic, as they are against opium.

† This is one of many facts that prove purging to be the effect of a state of indirect debility, occasioned by the improper subduction of



and four grains of each at bed time.—26th, the same plan was continued; and he had no return of fever.—27th, he had no fever, and his mouth was very sore. The pills were ordered to be given every six hours.—28th, his head, face, tongue and throat, were much swelled; he had a considerable discharge of blood from the mouth and fauces, and some purging. In this case, the medicines were by no means correctly exhibited. But it is probable also, that they were not regularly taken. Salivation, or, in cases of local disease, where salivation cannot be produced, a discharge of blood from the mouth and fauces, does not take place, while the mercury is regularly taken, but when it is either suddenly laid aside, or given at improper intervals.\* The following mixture was prescribed—tincture of opium three hundred drops—water one pint—peppermint-water and sugar, as much as will make the mixture agreeable—an ounce of it to be taken every hour. The pills were

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stimulant powers. Had the powders been regularly repeated in the night, the purging and griping would not have taken place. This I have observed so repeatedly with respect to calomel, that I have no hesitation in asserting it to be an undoubted fact.

\* Vide the subsequent cases, and the "Treatise on Mercury."



omitted. On the 29th and 30th, he continued the mixture; his mouth was better; he had no fever, and but little purging; and his pulse was 86.—October the 1st, his pulse was 76, and of good strength; his mouth was much better; and he had no return of fever. The tincture of opium was diminished to two hundred drops.—From that period, he recovered strength, and had no return of fever. The mixture was gradually decreased in strength and discontinued. On the 16th of October, he was discharged, apparently well.

THERE are several inferences to be drawn from this case. The obstinacy of the fever convinced me, that it depended upon local disease, and determined me to give mercury in large doses. The discharge of blood from the mouth and fauces, without a previous increased flow of saliva, was an additional proof of the existence of internal local affection. And, altho' this patient left the Hospital apparently well, I am convinced, from the circumstances mentioned, as well as from an irregularity of his bowels, that his abdominal viscera were in a diseased state, and that his exemption from general disease was merely temporary. From



these observations, I would not be understood to infer, that mercury acts as a *specific* in removing local disease; but that, by supporting the excitement of the whole body, it invigorates each particular part, and thus occasions, to a certain extent, the regeneration of those organs, which may have been injured by disease.

THIS is not the only instance, in which the good effects of opium have been experienced, where an excessive salivation, or a discharge of blood from the fauces, after the use of mercury, had taken place. As these symptoms happen from too sudden a subduction, or an irregular repetition of the mercury; so they may be either obviated or removed, by a proper application of the same power. But as the prejudices of patients will seldom admit of a continuance of the medicine, in these cases, it is absolutely necessary to substitute some other stimulant power, equivalent in force. Those which I have found to answer best, are opium, blisters, and the warm bath. Other stimuli, justly proportioned, might no doubt answer equally well. But from the endless hypotheses of the art, no successful attempts have yet been made to ascertain their relative powers. This is a discovery, which,



however distant; I am yet sanguine enough to expect. For, in the medical as in the moral world, attachment to principles instead of persons, may be expected to increase, with the progress of knowledge.

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### CASE VIII.

HENRY DOLLAWAL, aged 26, was admitted into the General Hospital, on the evening of the 22d of October, 1796. He had, for a fortnight before, complained of headach, pain of loins, hoarseness, and cough, &c. pulse 58. He was ordered to take two grains of opium and four grains of calomel, at 9 o'clock, P. M. and again at twelve.—On the 23d, he was somewhat easier. Pulse as before. He had no stool. One grain of opium and three grains of calomel, were given every three hours; and several glysters of castor oil.—9 o'clock P. M. he had one stool. The opium and



calomel were desired to be repeated, as the night before. Pulse 64.—24th, he thought himself better; but his cough continued severe. Pulse 56. He was desired to take four grains of calomel every three hours.—9 o'clock P. M. he was not sensible that the pills produced any effect. Four grains of opium and ten grains of calomel were ordered to be taken immediately, and repeated at 12 o'clock.—25th, he was seized in the morning with violent spasms. Pulse 64. He was put into the warm bath, which was ordered to be repeated according to circumstances. Afterwards, two grains of opium and four grains of calomel were directed to be taken every two hours, day and night.—26th, he was much better, and had no cough. The pills were continued.—27th, he thought himself better. His pulse beat only 44 strokes in the minute. The pills were repeated every three hours.—28th, his mouth was gently affected. Two grains of opium and two grains of calomel were given every three hours.—29th, he was in every respect better, had some slight spitting, and felt a returning appetite. Pulse 68.—One grain of opium and one grain of calomel were given every four hours.—On the 30th, he was discharged well.



AN uncommonly flushed countenance, and what is called a plethoric habit, together with an unusual slowness of pulse, hoarseness, cough, and pains, would have indicated, according to the common practice, blood-letting and other evacuations, in this case. The powers, however, by which a cure was effected, prove, that these symptoms depended upon a state of indirect debility; and that the use of debilitating powers, would have been improper. For the same reason, it may be inferred, that a peculiar slowness, as well as a quickness of the pulse, sometimes takes place in a state of indirect debility. Every departure of the pulse from the healthy standard, whether in quickness or slowness, depends upon debility; as well as every deviation from health, in any of the other functions. Costiveness, as well as purging, depends upon debility of the intestinal canal. This is shewn from patients affected with the same disease having, in some cases a quickness, in others, a slowness of pulse; in some cases purging, in others costiveness; and all of them being cured by the same means. It is farther corroborated by the proof, that such a state as that of excessive excitement, cannot take place. As blood-letting is the abstraction of a high stimulant power, it must be shewn



that diseases of excessive excitement exist, before it can be admitted as a remedy. Or if it be contended that blood-letting is useful in diseases of debility, it must be shewn that it acts as a stimulant power. Mere assertions that it has been found useful, do not amount to a sufficient refutation of this reasoning.

THERE was an error of some importance in the treatment of this case, which affords the most convincing proof of the necessity of repeating the doses of medicines, at certain regular intervals, and by a certain rule.—On the morning of the 25th,—after having taken four grains of opium and ten grains of calomel, at nine and at twelve o'clock, the preceeding night, the patient was seized with violent griping and spasms. This symptom, as I have had frequent opportunities of observing, was undoubtedly owing to the doses not having been repeated at proper intervals. If a dose of equal strength, or one somewhat smaller,\* had been given at three, and another still smaller at six o'clock in the morning, the state of indirect debility, constituting spasm, would not have taken place. As these symptoms may be occasioned, or prevented, at pleasure, the fact is incontrovertible. In this case,



they immediately yielded to the stimulant power of the warm bath,—another proof that they arose from a state of indirect debility, occasioned by a deficient frequency or force, in the application of stimulant powers. Opium, calomel, camphor, æther, or castor oil, given in just proportions, would have produced the same effect with the warm bath. But external applications may often, with great advantage and conveniency, be alternated, or conjoined, with internal remedies.

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#### CASE IX.

ROBERT WILLIAMSON, aged 25, was admitted into the General Hospital, at Calcutta, on the 28th of October, with a quick and small pulse, laborious breathing, pain of back, loins, &c. His face was turgid; and his eyes red and starting. His tongue was foul and furred. He reported that he was attacked with fever, seven or eight days before, which had become more severe and continued for the last two days. Some medicines had been taken before he came



into the Hospital.—At 3 o'clock P. M. when I first saw him, ten grains of calomel were ordered to be taken every three hours. At 10 P. M. his pulse was 112, and his breathing exceedingly laborious. A scruple of calomel was ordered to be given immediately, and to be repeated at one o'clock A. M. A blister was applied to his sternum. On the 29th of October, his pulse was 120, with burning heat of skin. His tongue felt like a rough board. He had one small stool in the morning. Ten grains of calomel were ordered to be repeated every three hours.—At 9 o'clock P. M. his pulse was 124. He had one stool\* ; his breathing was laborious, his eyes starting, and he seemed in all other respects worse. Three grains of opium and twelve grains of calomel were desired to be given immediately, and repeated at 12 o'clock. October the 30th, he died at 4 o'clock, A. M.

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\* In this case the medicine seemed to produce but a very small effect. If to supply the waste of the excitability be the proper function of the lungs, it is evident that, after a certain degree of organic lesion has taken place, it cannot be recruited. But stimuli are not therefore to be withheld. For, by such a treatment, the excitability must be still farther exhausted.



UPON dissection, the thoracic viscera were found adhering to each other, in such a manner as to form but one mass. The lungs adhered to the pleuræ, mediastinum, and diaphragm; the heart to the pericardium; and the pericardium to all the surrounding parts. The adhesions were remarkably strong as well as general. The lungs were of a darker blue than usual. Upon a general view of the abdominal viscera, they appeared to be sound. The scrotum was gangrenous. In one of the arms, there was the mark of a recent incision, made by a lancet.

THIS was undoubtedly a case of the most violent peripneumony. According to the common practice, the patient would have been repeatedly bled. Would the abstraction of blood have produced a resolution of the adhesions, which were found in the thorax? The greatest partizan of the practice, I think, would scarcely affirm it. According to the confused notions entertained of peripneumony being a disease of excessive excitement, it becomes necessary, in order to preserve some appearance of consistency, to divide the disease into different stages, and to use a different or even an opposite plan of treatment, in each. Is it possible that any disease can vary



in its progress, excepting in degree? And if not, ought the powers applied for the cure to be varied, in the progress of any disease, excepting in their degree of force? These would appear to be the conclusions of reason and common sense. But to overturn such flimsy arguments, come in medical hypotheses and say “ inflammation we *suppose* arises from an increased impetus of the blood in the part affected, “ and is *therefore* to be cured by diminishing “ the quantity of that blood. In peripneumony, there is an inflammation of the lungs; and “ in order to cure the disease, the impetus of “ the blood in the lungs must be lessened by “ blood-letting.” To this curious fabric of reasoning, I will just oppose a single fact.— There is not an inflammation, with which we are acquainted, that is not to be cured (as far as it is curable) by the application of stimulant powers,—as warm fomentations, tincture of opium, tincture of cantharides, camphorated spirits, æther, volatile alkali, and mercury. If any person seriously doubts the fact, it will be an easy matter to submit it to the test of experiment.— And if there be any other reason, for persevering in the practice of blood-letting, than because it is derived from the hypotheses of the



schools, and is conformable to custom, let it be produced. That blood-letting had been used, in this case, previous to the patient's having been sent into the hospital, appears probable from the incision in his arm:—that he was purged is known. As cathartics, however, produce an increased degree of excitement, before the debilitating operation of purging succeeds, their stimulant effects will often more than counterbalance the indirectly debilitating effects, which afterwards arise. But as blood-letting is a directly debilitating operation,—the abstraction of an ordinary and powerful stimulus,—it must always be highly injurious. In diseases of direct debility, as far as they can become subjects of medical treatment, it must add to the accumulation; in those of indirect debility, it must increase the exhaustion(\*). It is upon the supposition alone that some diseases depend upon a state of excessive excitement, that blood-letting can ever be thought admissible. And that such a state does not exist has, in my opinion, been fully proved. I know it will be urged, by individuals, that they have found blood-letting useful. But this, like many other medical facts, is mere assertion, not proof. Whatever has been useful in one case, must be useful in every similar case

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\* Vide, "View of the Science of Life," Prop. XXVI.



of disease. But it is not so with blood-letting. —It has not invariably been found useful in any one disease. We may therefore, I think, fairly conclude that it has never been useful in any one case of disease. If it be said that this is reasoning, and that experience; let me be permitted to ask whether just reasoning and real experience can ever differ? It is impossible. —Whatever is true in theory, must be right in practice. To inculcate a contrary opinion is the grand shield of empiricism. Circumstances delivered as facts, from the presumed experience of individuals, ought never to weigh against principles, which are deduced from numerous and undoubted facts, and which can be put to the test of experiment by all mankind.

THE quantity of calomel given here was large. But after taking two scruples at two doses, and allowing time for the operation of purging from indirect debility to take place, only one scanty stool was produced. This shews clearly, that, although the quantity was large, in proportion to what is usually given, it was by no means sufficiently large in proportion to the exhaustion of excitability that had taken place; or, in other words, to the violence of the disease. Altho' it



be extremely doubtful, whether the excitability can ever be accumulated to the healthy standard, by any degree of stimulant power, when so many principal organs have become unable to perform their functions; yet it is certain that, in order to give a patient, in such circumstances, the only chance of cure, the stimuli should be increased in power, until they produce some effect. In this case, therefore, the medicines should have been both increased in quantity, and more frequently repeated. But as, in every kind of practice, the prejudices of patients, or carelessness of attendants, will frequently render it impossible strictly to adhere to the application of principles, we can only make such an approach to them, as these, and other circumstances, will permit.

HAD it not been my wish to bring the theory and practice of this doctrine to the fullest and fairest proof of discussion and experiment, this is one of those cases which I would have suppressed. It is to be regretted that writers do not oftener think it necessary to publish their unsuccessful, as well as their successful cases.



## CASE X.

ROBERT WOODSIDE, aged 25, was admitted into the General Hospital, at Calcutta, on the 24th of October, with a dysentery of a fortnights standing. He had 10 or 12 stools in the day, with blood; and complained much of headach, pain of loins, griping, and ténesmus. He lay easiest on his right side. His pulse was 108; and he had frequently a flush in both cheeks. I began by giving him small doses of calomel, frequently repeated; frictions of mercurial ointment; and draughts of 70 or 80 drops of tincture of opium, repeated according to circumstances, through the night. In the course of a few days, the calomel was increased to six grains, with two grains of opium, every two hours; an ounce and a half of ointment was rubbed in at four times, in the course of the day; and draughts, with two hundred drops of tincture of opium \* in each,

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\* Some cases of dysentery will require much more than this quantity. It is to be recollected however, that the laudanum was weaker, perhaps one third, than what is commonly used in Europe.



were given, every second hour, during the night. The calomel was occasionally alternated with camphor, and the tincture of opium with æther. Blisters were applied, and clysters of castor oil frequently given. These applications were made in concurrence or succession; and increased or diminished in strength, according to the judgment formed of the state of the excitement, at the time. For a fortnight he seemed to get better; at one time, the purging rather decreased, and he had no blood in his stools. But from his mouth not being affected, so as to produce an increased flow of saliva, after having used an uncommon quantity of mercury; from frequent sickness and vomiting; his always lying on the right side; some degree of fullness and anxiety; an occasional flush of the cheeks; and his having no appearance of getting better upon the whole; I concluded, although there was no apparent enlargement, that his liver was diseased.\* The medicines, however, were continued, with a view of supporting the excitement, with as much

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\* By disease of the liver is meant, that state in which it is incapable of performing its functions, whether it consist in inflammation, suppuration, induration, enlargement, &c.



equality as possible. He continued nearly in the same state as at first described, until the 14th of November, when his pulse (which had varied throughout from 64 to 108, with intermissions occasionally) increased in frequency to 120. His tongue became very dry and glossy. On the 15th, together with his other symptoms, he had a severe hiccup, and intermission of the pulse after every 7th or 8th beat. On the 16th the hiccup was severe and incessant; his pulse 116, and intermittent; he had no power in his extremities—and at ten o'clock P. M. he died.

IN tedious illnesses, patients naturally get disgusted with their medicines in the course of some weeks, or their attendants become negligent. Although both these circumstances happened, in some degree, in this case, the directions were upon the whole observed with much punctuality. From the beginning a cure was not expected. For in every similar case, of between twenty and thirty that were opened by myself, and some by Dr. Yates, the appearances of local disease were so much alike, that I can now almost venture to pronounce, from the symptoms, in what state the viscera will be found, upon dissection. In this case, I was so certain the liver was diseased, that



it was mentioned in the daily report, some time before his death. Upon dissection, there were found several abscesses in both lobes of the liver, communicating with each other, and containing, in all, about one pound of matter, of a thick consistence and white colour. On the upper surface, there were five or six ulcers, communicating with the abscesses. The edge of the right lobe, a part of the colon in contact with it, and part of the diaphragm, at its origin from the cartilages of the ninth and tenth ribs, were all sphacelated. The intestines, omentum, &c. were adhering throughout.

ARE flushed cheeks a symptom common to persons, whose viscera are diseased, whether of the thorax or abdomen? I have frequently observed it in both.

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### CASE XI.

THOMAS KELLAN, aged 28, was admitted into the General Hospital, at Calcutta, on the 2d of October, 1796, with dysentery of five



weeks standing, accompanied by pain in the region of the liver. He had the usual symptoms of griping, tenesmus, and a discharge of blood; generally lay either upon his right side, or in a sitting position; in the latter of which he found most ease. He was frequently sick, and vomited. His tongue was white and furred; and his pulse 104. Four grains of calomel, and one grain of opium were given every hour. One ounce of mercurial ointment, and half an ounce of calomel were rubbed in. On the 4th, he was easier, and had slept well. His tongue and pulse remained as before. The ointment was ordered to be rubbed in, morning and evening, and the pills to be continued\*; he was allowed eight glasses of wine in the twenty-four hours†.—Eight o'clock P. M. he had slept much during the day; pulse 120; he was in other respects much as before.—5th, his

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\* In the commencement of this case, two mistakes were made: one in not giving draughts at night, and the other in not rubbing the ointment at shorter intervals.

† This quantity was by far too little. In a case like this, a wine glassful every hour, would not have been too much.



pulse was 120, and he complained of weakness. He had six or seven stools, without blood; and was much inclined to dose. He complained of considerable pain, and burning sensations, in the region of the liver. A blister was ordered to be applied; and two grains of opium, with eight grains of calomel, to be given every hour. He was allowed twenty glasses of wine in the twenty-four hours.—6th, he had taken ten doses of the opium and calomel. Was much vomited and purged, and had some degree of fever during the night\*; but was then better. Pulse 108. The pain in the region of the liver was somewhat relieved. A pill of one grain of opium and four of calomel was ordered to be taken every hour; a draught, with one hundred and fifty drops of tincture of opium, to be given at eight o'clock P. M.; and to be repeated at twelve. The ointment was continued.—7th, he slept well, and had only two stools. Had taken seven pills, and the draughts; pulse 100. The pills, ointment, and draughts, were continued.—8th, he was considerably better; had five or six stools.

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\* In consequence of the irregular exhibition of the pills. This frequently happens, when pills are given in the day, and discontinued at night; or where draughts are not given at night, in lieu of them.



He had taken eleven pills, and the draughts. The pills, ointment, and the draughts reduced to 100 drops, were continued.—9th, he had taken ten pills, and one draught; had some stools yesterday, but none last night. Pulse 100: no sickness. The medicines were continued.—10th, having begun to get indifferent about taking his medicines, they were varied, in order to humour him. Instead of the pills, a mixture, consisting of half an ounce of tincture of opium, and one pint of water, was given, in divided portions, in the day. This was again alternated with pills. Blisters were repeatedly applied, and the draughts were continued; but the pain and burning sensations over all his abdomen sickness, and vomiting; frequency of stools with blood; smallness of the pulse, &c. seemed to be rather increasing. On the 14th, the tincture of opium in the mixture was increased to an ounce and a half, to one pound of water, of which he was ordered to take an ounce every half hour; the ointment was omitted, and the draughts continued. On the 15th, he said that he had been easier the day before; but, having become irregular in taking his draughts, he was frequently purged and griped at night. From that period till the 23d,



the opium and calomel, from two to four grains of the one, and from six to ten grains of the other, were alternated with the mixture; the ointment was rubbed occasionally; and the draughts, with from 60 to 100 drops of tincture of opium were given at night, or 3 or 4 grains of opium, whichever he seemed inclined to prefer. From the 23d of October, to the 18th of November, he appeared to be so much better, that, although confident of the existence of much internal local disease, I was not without hopes, that it was of such a degree as to admit of a reproduction of parts. His pulse varied from 80 to 96. The doses of medicines were considerably diminished. Camphor, four grains every two hours, was alternated occasionally with the calomel and opium. Glysters, with one ounce of castor oil, were sometimes given every hour, or every two hours; and two pounds of decoction of bark, with an ounce of powder, was given in the day. The ointment, and calomel pills were gradually diminished, to two drachms of the former, four times in the day; and two grains of the latter, every two hours. His sickness and vomiting still recurred. The burning sensations of the abdomen continued. And he was sensible of a



feverish exacerbation every third day.—Nov. the 17th, the pills were omitted, and the other medicines continued.—18th, he had not taken any of his medicines the day before. Complained of the offensive smell of his breath. This was evidently occasioned by leaving off the medicines. Being tired of all those to which he had been accustomed, I thought it might be of use to try the effects of *hepar sulphuris*, to remove the offensive smell of his breath, and prescribed one drachm three times a day. The other medicines (*viz.* decoction of bark, glysters, and draughts) were, at the same time, desired to be continued.—20th, he had frequent sickness, and vomiting; much purging, and great thirst. No appetite; and a sense of burning heat in his stomach and intestines. Common flowers of sulphur had been given, instead of the *hepar sulphuris*. They were desired to be omitted. Two pounds of decoction of bark, with half an ounce of æther, was given, in the course of the day; and the draughts were repeated.—22d, his symptoms continued as before. There was an evident enlargement of the right lobe of the liver; but no perceptible undulation. From that period, he had two pounds of decoction of bark, with two hundred drops of tincture of opium, in the day; the draughts



occasionally at night; calomel, castor oil, and other medicines were also given, and alternated, so as to prevent, as much as possible, his being disgusted with a sameness of treatment. But the symptoms were rather increasing in violence. The purging became more severe, with blood in his stools; sickness and vomiting more frequent; he complained much of heart-burn; and had sometimes feverish paroxysms, which seemed to be of a quartan type. There was, from the beginning, a flush in both cheeks, like those of a consumptive person. He complained of insensibility of the back, and weakness of the extremities. From all these circumstances, and from no increased flow of saliva having been produced by the mercury, I concluded that there was such a degree of local disease, as to render the case incurable, by any treatment that was possible, in such a situation, to be pursued. It was, however, persisted in, with as much regularity as was practicable. He continued gradually sinking, until the 2d of December, when he died.

UPON dissection, the left lung was found adhering strongly to all the neighbouring parts. Its substance was unusually dry, hard, and yellow; and appeared as if it had not, for some



time, transmitted blood, or performed its proper functions. The liver weighed about five pounds\*, was considerably indurated, but had undergone no suppuration. The other abdominal viscera were adhering, in such a manner as to form but one mass; with the exception of the spleen, which had a sound appearance.—The cœcum, colon, and rectum, were ulcerated throughout their whole extent. The ulcers were, in many places, an inch in diameter; and had penetrated the two inner coats. It is somewhat remarkable that, in between thirty and forty cases of dysentery which I have seen opened, there was not, in a single instance, any of the scybala mentioned by authors, as a symptom of that disease.

THE uncommon quantity of mercury that was here used, without being followed by any affection of the mouth, was a sufficient proof that there existed a lesion of organs, which, if curable, required the application of still higher powers than those that were employed. Even in external local affections, it is now well known, that a cure depends

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\* The average weight of a sound liver, I believe, may be about three pounds and an half, or perhaps somewhat more.



more upon the support of the general excitement, than upon local applications. The cure then, of internal local disease, were it even possible to apply local remedies, must still be performed by the application of powers, calculated to support the general excitement.

WE have yet, perhaps, no adequate idea of the degree of power, that may sometimes be required, to produce this effect. But it is very certain that, while in some cases by far too little, in others by far too much of stimulant power is applied. Mercury, for instance, in cases of dysentery, is generally used in too small proportions, while in venereal cases, it is by much too freely given. Half a grain of calomel, or less, given every two or three hours, will in a short time effect a cure in ordinary cases of chancre, gonorrhœa, or even a certain degree of syphilis. In these cases, there is seldom any great degree of organic lesion, at least of those organs which are most essential to life. It is only when some of the primary organs are in a state of local disease, that a great and long continued application, of high stimulant powers, becomes necessary, in order to re-produce health. Of this, dysentery is one of the most familiar and fatal examples.



The diminution of the medicines that was made, at one period, upon the prospect of the patient being better, was injudicious. Although, in such a case, no plan would probably have succeeded, a perseverance in the regular application of high exciting powers, would have given him one chance of recovery.

THE offensive state of his breath, of which he complained on the 18th of November, was evidently occasioned by the subduction of the medicines. This is a symptom of indirect debility, as well as salivation, purging, sweat, or any other effect of an irregular application, or sudden subduction, of mercury. That these effects are so frequently produced, by the ordinary mode of exhibiting that medicine, ought not to surprise us. It is also obvious that if, when given at random, this and other medicines of high stimulant power so frequently produce good effects, their salutary effects, when applied according to just principles, may be expected to surpass any thing, of which we can yet form an idea.



## CASE XII.

JOHN CLUFF, aged 30, was admitted into the General Hospital, at Calcutta, on the 18th of November, 1796, with a dysentery of some days standing. He had incessant calls to stool, passed blood, with severe griping, tenesmus, and prolapsus ani. His thirst was intense; and he seemed in dreadful agony, from lancinating pains. Six grains of opium, and eight grains of calomel, were ordered to be given every hour; a glyster, with three ounces of castor oil, and three ounces of warm water every hour; and half an ounce of mercurial ointment to be rubbed in, four times in the day. A bottle of Madeira, in two quarts of barley water, was prescribed for drink. At twelve o'clock A. M. he had taken two of the pills, and seemed easier. In consequence of a consultation, the pills were ordered to be omitted, and two ounces of the following mixture to be given, every half hour;—viz. Sal. Cathart. Amar. ten drachms, Crem. Tart. two drachms, Tart. Emetic two grains, water one



pint. A draught, with one hundred drops of tincture of opium, was ordered at eight o'clock, and another at twelve. November the 19th, after having taken the mixture, he was both vomited and purged. These operations continued occasionally during the night, and were not entirely stopped by the draughts. His pulse was 92, tongue foul, and thirst intense; he complained of great pain across the umbilical region; and passed blood in his stools. The mixture was ordered to be repeated; the ointment and glysters to be continued; warm fomentations to be used; and three draughts, with one hundred and fifty drops of tincture of opium in each, were ordered to be given at night, at intervals of three hours. November the 20th, he was much better. His tongue, however, was foul. The glysters did not seem to produce much effect. The mixture, ointment, and draughts were ordered to be repeated; and the glysters to be discontinued.—21st, having, on the evening of the 19th, taken his three draughts at once, in the course of yesterday, he became rather confused; and was dissuaded, by one of his comrades, from taking the draughts the night before as prescribed. He appeared much confused; but the purging was less severe. The mixture, ointment,



and draughts, with one hundred drops in each, were desired to be repeated. 22d, he was again dissuaded, with the best intentions however, from taking his draughts; in consequence of which his confusion increased, and he ran about the ward, in a state of considerable derangement, all night. I represented to his friend, who had with-held the medicines through kindness, the danger of persevering in such conduct; and entreated that he would exhibit the doses exactly as they were prescribed, which he afterwards punctually did. But in order to insure a compliance, I thought it best occasionally to vary the remedies, and to use such as should fall in with the prejudices of the patient and his friend. Accordingly one drachm of jallap was immediately given. The warm bath was desired to be used three times a day; and after the bath, two drachms of mercurial ointment to be rubbed in, each time.—When the operation of purging should commence, after the exhibition of the jallap, a pill, consisting of four grains of opium, and six of calomel, was directed to be given every hour; and to be continued through the night, in lieu of the draughts.—23d, in the course of the preceeding day and night, he had taken nine pills, consisting of four grains of opium and six



of calomel each. He slept well; had little purging; and was free from pain. He only complained of weakness and thirst. The pills were reduced to two grains of opium, and four grains of calomel, every two hours. The ointment was continued; and the bath and glysters omitted.—24th, he was better. He still passed some blood by stool, and had a difficulty in making water. He complained that his mouth was sore. These symptoms I judged to have arisen, either from the subduction of stimulus the day before having been too great, or the patient having neglected to take the quantity that was prescribed. The medicines were desired to be continued; and the patient was particularly enjoined to take them regularly.—25th, his mouth was less sore, he had fewer stools, and no blood in them; his skin was moist, and his pulse 80.—26th, pulse 88, and smaller. Purging and griping continued. By mistake, he had no pills during the night. This fully accounted for the alteration since the day before. He was ordered to have a quart of decoction of bark, with two hundred drops of tincture of opium, to be taken in divided doses through the day. Two drachms of mercurial ointment, and one drachm of calomel,



were rubbed in four times in the day\*. On the 27th, he was rather better; the medicines were continued; on the 28th, he was much the same; the decoction, with two hundred drops of tincture of opium, was continued.—He did not always take the whole of the decoction; but generally more than two thirds of it. The ointment was diminished to one drachm four times in the day; and two draughts, with eighty drops of tincture of opium in each, were ordered to be given in the night.—29th, he had taken the draughts and slept well; had only one stool; pulse 84;—tongue clean; he felt some degree of oppression about the pit of the stomach; a blister was applied; the ointment was omitted; the decoction of bark, with tincture of opium, was ordered to be continued; and the draughts to be reduced to sixty drops. From that period, he continued to get better. The stimuli were increased, or diminished, according to circumstances; and, on the 12th of December, he was discharged without any complaint, excepting a little griping at times. At his own request, he had a small phial of tincture of opium, and some pills, with directions how to

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\* On the 26th and 27th there was an omission, in not prescribing draughts or pills, sufficient to support the excitement in the night.



take them, if required, before he could join his ship at Diamond Harbour.

WHEN, in consequence of consultations, as happened in this case, cathartics were exhibited, I endeavoured so to manage them, as regularly to support the excitement; and to prevent, as far as possible, the state of indirect debility, which constitutes vomiting and purging, by exhibiting other stimuli, on the commencement of these operations. But this is generally very difficult to accomplish, principally from the ideas, which patients traditionally imbibe, of the utility of these operations.

ACCORDING to the hitherto uncertain state of the art, it is not surprising that consultations, in which, to use the words of an elegant writer, "learned physicians neutralize their plans,\*" should seldom be productive of benefit to patients. They are too often scenes of mutual complaisance, in which he, who has most to gain, sacrifices most of his opinion. This has been a subject of much regret to sensible men of the profession; and such scenes have consequently been avoided by many of

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\* Aikin's Letters to his Son.



them. It is no mean proof of the truth of the medical principles, asserted in these pages, that two persons, who thoroughly understand them, will differ, but in a very small degree, in their application to practice. In this respect, I have known a coincidence so perfect, that it could, in no other manner, be accounted for. Their general adoption, then, would banish that vulgar adage, which, at present, not undeservedly attaches a degree of ridicule to the cultivators of the healing art, "doctors differ."

IN the report of the 24th of November, it is observed, that the patient had a difficulty in making water, and a soreness of the mouth, which were judged to have arisen, either from the subduction of stimulus, on the 23d, having been too great, or his having neglected to use the quantity prescribed. This is not hypothesis; but a clear induction of facts. It is certain, that a difficulty of making water, is a symptom that arises from a state of indirect debility, whether that succeeds the exhibition of cantharides, opium, or any other stimulant power. It is also true, that it may be cured by opium, the warm bath, or cantharides. The general mode of applying blisters is such, as often to induce that state; and



is therefore improper. Blisters of a small size, frequently repeated, will produce a regular excitement, like successive frictions of mercurial ointment. But they ought not to lay on the skin ten or twelve hours ; nor so long as to be succeeded by vesication, which is a state of indirect debility. Neither is it necessary that they should be applied, in preference, to any particular spot. For, although they make the first, and a somewhat greater impression, upon the part, with which they come immediately in contact ; yet, to whatever part of the body they are applied, their action will extend to every other. The action of stimuli upon the excitability, may be compared to an electric shock, which, seemingly at the same instant of time, affects every person in company,—the nearest and the most distant from the phial. When the *modus operandi* of the one is ascertained, we may expect to ascertain the *modus operandi* of the other.

IN the preceeding, as well as in many other cases, medicines were often exhibited improperly ; sometimes from omissions in prescribing, sometimes from negligence or mistakes of attendants, and sometimes from the prejudices of the patient.



WITH any number of patients, there cannot be much difficulty in prescribing, according to the old plan of practice, which consists in giving certain fixed doses of medicines, in every disease, whatever be its degree. But justly to proportion the application of stimulant powers, to the exhaustion of the excitability of each patient, requires more exertion of judgment and consideration, on the part of the practitioner, and a stricter conformity with directions, on the part of the patient, and of the attendants. It is evident then, that, in an hospital, it requires an unusual degree of exertion to apply these principles to practice, in from thirty to forty bad cases of disease, daily. But it is their introduction only that is difficult. Once generally admitted, their application would be attended with as much facility, and certainly with more pleasure, because with more success, than any routine of empiricism.

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### CASE XIII.

ISAAC HUDSON, aged 30, was admitted into the General Hospital, at Calcutta, on



the 31st of October, 1796, with the following symptoms: Pulse 132, and small. He had for some time feverish paroxysms, at 11 o'clock A. M. and 11 P. M. which continued between two and three hours. Tongue foul; skin hot; his bowels were quite irregular, sometimes extremely loose, at other times excessively costive. He had a cough, with hoarseness; and pains of the bones and joints. Together with these complaints, he had chancres of a fortnight's standing.—One grain of opium and one grain of calomel were prescribed every hour; and two drachms of mercurial ointment were ordered to be rubbed in, three times in the day. November the 1st, pulse 96. The fever and purging continued. His pains were rather less severe. His tongue was very white. Ten grains of calomel were given every three hours. On the 2d, his pulse was 92. He had taken four doses of the calomel. His tongue was less foul. Eight grains of calomel were ordered every three hours, day and night.—3d, pulse 88; he had taken eight doses of the calomel. He had a sore throat and hoarseness, with an incipient spitting. The calomel was omitted, because it was deemed highly probable that he would not have taken it, if prescribed. Three grains of opium were given



every hour. And three drachms of ointment were ordered to be rubbed in, three or four times in the day.—4th, his mouth and throat were very sore, and he spit some blood; from whence it was concluded, that he had omitted to take his medicines, or that he had used them in an irregular manner. A blister was applied to one of his cheeks; two grains of opium were given every two hours; and a glyster, with one ounce of castor oil, was ordered every two hours. He was allowed four glasses of wine in the day. On the 5th, his mouth became very sore, and there was some increased flow of saliva. A blister was applied to the other cheek; the pills and glysters were continued; and he was allowed six glasses of wine.—6th, his mouth became exceedingly sore, and his face more swelled. He had no stool; a blister\* was applied to his breast. The pills were ordered to be continued, and a glyster, with two ounces of castor oil, to be given every second hour.—7th, he was much in the same state; the medicines were ordered to be continued. On the 8th, he had some

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\* Among patients, upon whose veracity there is not much dependence, I prefer in these cases, the use of blisters, upon this principle, that they cannot deceive.



difficulty of breathing, his pulse was exceedingly small, and he had fainting fits. Upon enquiry, it was found that he had lately neglected to take the medicines, which he himself confessed. In order to ensure compliance in this respect, a change was made in the medicines. He was put into the warm bath three times in the day. The glysters were continued. And he had three draughts, with one hundred drops of tincture of opium in each, at regular intervals in the night. 9th, he was better; his pulse was 108 and stronger. Cough less severe; and swelling of the face abated. The bath, and glysters were ordered to be repeated; and a draught, with forty drops of tincture of opium, to be given every hour.—10th, he was much in the same state; the medicines were continued.—11th, his breath was very foetid, and tongue much swelled; which evinced that he had been irregular in taking his medicines. A blister was applied to his neck, and the other medicines were continued.—12th, he was rather better; the medicines were continued; and two drachms of ointment were ordered to be rubbed in, twice a day.\*—14th, his mouth continued very sore,

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\* This was too seldom. Wherever mercurial frictions are necessary, they ought to be used at least four times in the day; and it would also be attended with advantage to repeat them at night.



and he complained of weakness; one drachm of ointment was rubbed in three times in the day, and the other medicines continued.—15th, he seemed better, but complained of weakness; some blood was discharged from his mouth and fauces; he did not permit the ointment to be rubbed in, the day before. The ointment and glysters were continued; and he was enjoined to use his medicines regularly. The following mixture was given,—decoction of bark two pounds, powder of bark one ounce, tincture of opium one hundred and fifty drops; the whole of it was ordered to be taken, in divided portions, in the day. The draughts were continued as before. From that period, he got gradually better. His mouth became more or less sore, in the exact proportion of the regularity, with which he took his medicines. By that symptom, I could detect his irregularities. He continued, for some time, subject to purging, and slight paroxysms of fever occasionally. But, by a perseverance in the same plan of treatment, and a gradual diminution of the medicines, he remained, on the 13th of December, free from complaint, excepting a slight soreness of the mouth. And on the 14th, when I discontinued attending him, he was in an advanced stage of convalescence.



THIS is one of those cases, which shew that foreness of the mouth, and salivation, do not arise from the action of mercury, when regularly applied, and gradually decreased ; but that these, and other symptoms of indirect debility, arise in consequence of its irregular application, or sudden subduction. This patient, like many others, was so sensible of the truth of the above observation that, after there was a necessity for using the warm bath, he took his medicines with much regularity, until he became convalescent. He was, from repeated experience, convinced that the foreness of his mouth increased, upon the subduction of the mercury, opium, or warm bath.

FROM the beginning, I was doubtful of a recovery. For, a small and quick pulse, hoarseness and difficulty of breathing, and the very irregular state of his bowels, indicated that some degree of local affection, both of the thoracic and abdominal viscera, had taken place. From the issue, however, it appeared that they were of such a degree, as to admit of a regeneration of organs.



## CASE XIV.

ABRAHAM JACKSON, aged 23, was admitted into the General Hospital, at Calcutta, on the 15th of November, 1796, with dysentery of a few days standing.—16th, he had four doses, consisting of ten grains of calomel each, through the night. Pulse 100; tongue white; skin hot. There was a considerable quantity of blood in his stools. Ten grains of calomel and four grains of opium, were ordered to be given every three hours; and a glyster, with two ounces of castor oil, every two hours. On the 17th, he was rather easier; but had been much griped through the night.\* The glysters gave him ease. The pills were intended to have been continued through the night; but as it was not particularly expressed in the report, they were not given.—The pills were omitted; a glyster was given every hour; and common infusion of senna, with two grains of tartar emetic, in small doses, fre-

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\* Griping, purging, and restlessness, are frequently produced under a course of opium, or mercury, in consequence of the doses not being properly repeated through the night.



quently repeated through the day. Draughts, with eighty drops of tincture of opium, were desired to be given at bed time; and to be repeated, according to circumstances, through the night.—18th, he was rather better. One grain of opium and four grains of calomel were given every second hour. Two drachms of mercurial ointment were ordered to be rubbed in, four times in the day. The glysters and draughts were continued.—19th, he had taken only one draught; and his head became confused towards morning\*. He was much griped. Pulse 80. The draughts were omitted, from a conviction that he would not take them. The other medicines were continued; and warm fomentations applied to the abdomen.—20th, he had not slept well, and was much purged and griped. The pills were omitted; and a solution with ten drachms of *sal catharticus amarus*, and two grains of tartar emetic, was given, in small doses, through the day.—21st, from this period, he had a quart of decoction of bark, with one hundred drops of tincture of opium, daily; one drachm of mer-

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\* It cannot be too often insinuated, that this symptom arises from medicines not being properly repeated. It is what frequently happens, in the ordinary way of exhibiting opium; and for which the medicine itself is by no means to blame.



curial ointment was rubbed in, four times in the day; and three draughts, with sixty drops of tincture of opium in each, were given at intervals during the night. He continued to get better. On the 28th, he was so well, as to ask leave to go to town.—29th, having committed excesses the day before, he had pains and other feverish symptoms. His pulse was above 100. He was ordered to have a mixture of *sal catharticus amarus*; and the draughts were repeated. 30th, he had a severe paroxysm of fever in the night, and perspired profusely. Pulse 100. Two grains of opium and six grains of calomel, were given every second hour. Two drachms of mercurial ointment were directed to be rubbed in, every three hours\*. December the 1st, he perspired profusely, and had a paroxysm of fever in the night. Pulse 100. Three drachms of ointment, with one drachm of calomel, were ordered to be rubbed in, four times in the day. The pills were continued. And three draughts, with 60 drops of tincture of opium in each, were ordered to be given, in the course of the night.—2d, he was worse. His pulse was 112; he had a paroxysm of fever, and some purging in the

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\* It was a great omission, at this time, not to have given draughts, or pills, through the night.



night. The ointment was continued. A pill, with four grains of opium and eight grains of calomel, was given every second hour in the day; and three draughts, with eighty drops of tincture of opium in each, in the night. On the 3d, he was better. Pulse only 100. On the 4th, his pulse was 96, and his mouth a little sore. 4th, 5th, and 6th, his medicines were continued; he was better; and had no fever. On the 7th, having discontinued his medicines the day before, his mouth became very sore, and an increased flow of saliva commenced. The pills were ordered to be reduced to six grains of calomel and three grains of opium; the draughts to be repeated; and the ointment to be omitted. But as I had no reliance on his taking the pills regularly, a quart of decoction of bark, with a hundred drops of tincture of opium, was ordered to be taken in the day, to prevent his mouth from becoming excessively sore.—8th, did not take the pills on account, as he said, of his having some difficulty in swallowing them; but took the decoction and draughts; pulse 100; his mouth continued sore, and the flow of saliva increased. Three drachms of mercurial ointment were ordered to be rubbed in, four times in the day; and he was informed that, if he did not allow it to be regularly applied,



his mouth would become much forer. The decoction and draughts were continued; and the pills omitted.—9th, he spit freely; and seemed much better. The decoction and draughts were continued; and the ointment omitted. From that period, he was convalescent. And on the 14th of December, when I discontinued attending him, he had no complaint, excepting the soreness of his mouth; which, however, was rapidly decreasing.

WHEN the medicines were increased to a due degree, as on the 3d of December, the patient speedily got better; and had he continued to take them with regularity throughout, he would have got well much sooner. He had however taken a sufficient quantity, to be succeeded by an increased flow of saliva. And after that symptom occurred, he was considered as out of danger.

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IN the foregoing cases, in general, the state of the pulse has been noted, with some care. The pulse, in all its degrees of quickness, slowness, weakness, irregularity, and intermission, may be considered as a kind of thermometer, by which, together with the state of other functions,



some judgment may be formed of the state of the excitement. A deviation from health in the state of the pulse, is one of the most constant symptoms of indirect debility. But the surest criterion yet known, by which to estimate the degree of exhaustion, is the effect produced, by the stimulant powers, applied for the cure.

WHEN the effects of the mercurial ointment were not deemed sufficiently powerful, calomel was added. The ointment used was the strongest; but the quick-silver was not always sufficiently triturated. It is almost unnecessary to observe that, in dangerous cases, mercury may at the same time be used, both internally and externally, with advantage.

THE explanations annexed to the cases will, perhaps, appear unnecessarily copious; and, in some parts, mere repetitions. But that was deemed the most familiar, and therefore, in some respects, the best mode of illustrating the subject. Examples will often place inferences in a clear point of view, when they might not be obvious from general reasoning.



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## POSTSCRIPT,

*By C. MACLEAN.*

THE preceeding cases, it will be observed, are not particularly selected from such as terminated happily. Those only that were deemed most instructive, in illustrating particular points, have been chosen. Many more of equal importance might have been added; but the publication would thus have become too voluminous. None of them are offered, as approaching to perfect examples; but merely as conveying a general idea of the mode, in which, according to our opinion, the principles of the doctrine should be applied to practice.

ALTHOUGH opium and mercury are the medicines, upon which we have placed most dependance, in diseases of high degree, as being more intimately acquainted with their powers; it is conceived that the doctrine, properly under-



stood, embraces the whole range of the *Materia Medica*. It does not admit, indeed, of any other effect being produced, by the application of any power in nature, to living bodies, than an increase or diminution of the vigor, with which they perform their proper functions; i. e. an increase or diminution of their excitement. With a view to the excitement solely is every medicine whatever prescribed. And when the means employed are unsuccessful, the failure should be attributed to a want of judgment in their application, rather than to any error in the principles themselves.

It ought not to be overlooked that, in most of the foregoing examples, the diseases were those of the greatest exhaustion, occurring among a set of men (soldiers, mariners, &c.) possessing robust constitutions, and accustomed to the application of high degrees of stimulant power. In diseases of warm climates, in general, the exhaustion is much greater than in those of cold climates. Perhaps too, in the former, the medicines lose much of their strength, before they come into use. So that a material difference will be required in the practice. Another caution that deserves to be



attended to, in all countries, is to guard against the application of cold, during the operation of high exciting powers. For, when the smallest degree of indirect debility happens to take place, from irregularity in the application of these powers, the application of cold, or, to speak more correctly, the subduction of heat, will increase the exhaustion, and add to the force of the disease.

THE strenuous and authoritative manner, in which this doctrine has always been opposed, renders a knowledge of its application to practice difficult to be obtained, even by those who thoroughly understand its principles. The laws of mechanics may be perfectly well understood. But if a body of artificers, who had from time immemorial conducted the operative part, in total ignorance of those laws, were unanimously to declare, "that the principles might indeed be  
" both ingenious and just, for aught they knew,  
" but that they were dangerous in their application to practice," it is certain that the public would, for a time, be deceived by the representations of these workmen; and the principles of mechanics, however just or applicable, could not generally be reduced to practice, until the



deception ceased. Moral truths may be perfectly well understood by a few ; but the ignorance, prejudices, and passions of a great majority of the human race, will long retard their complete application to practice. Medical truths however have only to combat the prejudices and interests of a particular, and but a small body of men. It may therefore be permitted to hope, that their application to practice, cannot be much longer delayed.

THOSE who have admired, and those who have opposed the new medical principles, without being masters of the subject, must have been equally unsuccessful, in their attempts to apply them to practice. By every succeeding case of failure, the admiration of the one would be diminished, the opposition of the other confirmed. The objection, therefore, is very just, that “attempts to apply the principles of the Brunonian Doctrine to practice, may be dangerous, in ignorant hands.” In other words, men cannot apply to practice principles, which they do not understand.—Let us suppose a person, wholly unacquainted with the *laws* of living bodies, applying *powers* to them ; how can he be expected to produce a *given effect* ? Over-



looking the immense variety of degrees, between the state of health, and the highest state of exhaustion, he would probably prescribe one grain of a solid medicine, when he should have prescribed twenty, or twenty, when he should have prescribed but one ; he would give twenty drops of a fluid, when he should have given two hundred; or two hundred, when he should have given but twenty. He would repeat the medicine but once or twice in the twenty-four hours, instead of every hour, or every half hour, according to the duration of its action. He would use the strongest powers, instead of the weakest ; and the weakest instead of the strongest. He would not make any distinction between the delicate female, and the robust male frame ; between childhood and youth, and youth and old age ; between recent and long standing diseases. He would not even know how to make allowances for inveterate habits. In such hands, no success could be expected, any more than from a mechanic, who should employ equal powers to raise unequal weights. He might sometimes indeed be right by chance.

FAR otherwise is it with him who applies principles to practice. He calculates, combines, and proportions his powers, according to known



laws ; and applies them, in such a manner, as to produce certain and given effects. Nor is the practice of medicine different, in this respect, from any other art, which is founded upon principle, and requires a certain degree of mental exertion.

IN the preceeding pages, some things may appear doubtful, the arrangement occasionally inaccurate, and the whole requiring illustration. Was it not even too late, I should not think myself at liberty, without the approbation of my ingenious and esteemed friend, Dr. Yates, to make any material alterations in the text. But, in the mean time, it may not be improper to offer such remarks, as have been dictated by subsequent reflection, and may perhaps lead to an arrangement somewhat different, if ever an opportunity should occur of revising the subject.

IN the first place, diseases of accumulation, or of direct debility, appear to be even more rare than we have supposed them. For if, to a body in a state of accumulation, the ordinary stimuli be applied, a disease of exhaustion will immediately ensue. But a body can never long remain in a state of accumulation, without having the ordinary degree of stimulant power applied, and



sometimes even more. The accumulation, which is produced by the abstraction of heat, food, or the mental passions, if it be not immediately removed, by the gradual re-application of these powers, will be converted into a state of exhaustion, as soon as the ordinary exciting powers, which support the healthy state, are again applied. It is evident, then, that accumulation of the excitability, from the abstraction, or diminution of one or more stimuli, must soon terminate in the re-establishment of health, by the gradual re-application of these powers, or in the establishment, of a state of exhaustion, or of indirect debility, by their sudden and excessive re-application. But it is difficult to suppose, such a complete abstraction of heat, food, or mental stimuli, as to occasion death, without the intervention of some stimulant power, converting the state of accumulation into a state of indirect debility. When food and drink have been long withheld, even a draught of water will exhaust the excitability, and occasion death. Let us suppose a person travelling through a sandy desert, under the scorching rays of a vertical sun. If he was previously in a state of accumulation, from the abstraction of the ordinary stimuli, that would immediately be converted into a state of exhaus-



tion\*. And a continuance of the abstraction, would still farther add to the exhaustion, until it terminated in death. When heat has been long abstracted, and to a considerable degree, a degree less than that which constitutes the common temperature, suddenly applied, will produce mortification, or the death of a part. The case of the Roman mother, so aptly quoted by Brown, will exemplify the same principle, as applied to the mental stimuli. The state of torpor in which some animals remain, during the winter, and the manner of their resuscitation in the spring, even in a lower degree of temperature than that in which they became torpid, at the same time that it affords a beautiful explication of the principles of this doctrine, seems to shew, that death does not take place, from the mere abstraction of heat, or from accumulation of the excitability. In this state of prolonged sleep, while respiration is languidly performed, the other functions are diminished or entirely suspended. Thus, in a two-fold manner, the excitability is accumulated, the susceptibility of impression is proportionally increased, and

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\* This follows as a consequence from Prop. V. I. although not so stated in the text.



a degree of heat, lower than that under which torpor took place in autumn, will produce healthy excitement in spring.\* It seems very difficult to conceive, how death can ever take place from mere accumulation. For while excitability remains, a due application of exciting powers will produce healthy excitement; and when it is accumulated in an unusual degree, it is only required that a diminution of exciting powers, proportionate to the accumulation, or to the susceptibility of impression, should be made, in order to produce the highest excitement. But in every case, in which death *seems* to take place from accumulation, it is easy to conceive, that it *really* happens from exhaustion. For, in the highest degrees of accumulation, for instance when a living body is nearly frozen, the smallest degree of exciting power, although greatly below the force of the ordinary stimuli applied in a state of health, will be disproportionate to the susceptibility of impression, and will therefore produce a state of exhaustion. And the farther subduction of heat, will increase the exhaustion so produced, until it terminates in death. Upon the whole, it may, I think, be

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\* This idea is, in part, taken from Dr. Girtanner.



concluded, that death never takes place directly from accumulation ; but always from exhaustion of the excitability. The state of accumulation, then, when it does not terminate in health, by the gradual re-application of exciting powers, must always terminate in a state of exhaustion, by the application of exciting powers, disproportionate to the state of the excitability. Scurvy, therefore, and the other diseases, which have been mentioned as arising from the abstraction of stimuli, would seem to be all diseases of exhaustion, or of indirect debility. In proof of this, every case, that I have met with at sea, resembling what has been described by authors under the name of scurvy, yielded to mercury. It was so certain a cure, that I never thought of using any other remedy. Nor did it at all, when properly exhibited, increase the debility of the patient. The reason why mercury has so often been found injurious in scurvy, is, that it has seldom been given in a proper manner. The salivation, of which authors complain, as being so easily excited, would never occur, if it was exhibited in such a manner, as regularly to support the excitement. It is now perfectly known, that this and every



other symptom of indirect debility, which succeed the use of mercury, arise from the subduction, not from the immediate action of that medicine. But where salivation actually takes place, after the application of mercury, or other stimulant powers, many facts concur in shewing, that but a small degree of organic lesion exists; and if a patient, in that state, ever dies, it must be from subsequent mismanagement. The complaints, therefore, against mercury, in scurvy and other diseases, are not justly to be attributed to the medicine, but to the abuse of it. There does not seem much difficulty in accounting for the bad effects, which have arisen from the abuse of mercury in that disease. As the proper principle, upon which that and every other medicine should be exhibited, has not been understood, the mode in which it was applied in scurvy, must necessarily have increased the exhaustion, or converted the original state of accumulation, into a state of exhaustion; and the vicissitudes of weather, that usually occur on board of ships, would increase still farther the exhaustion. It is in this way, and upon the principles explained in the text, that cold proves so injurious, during the application of mercury, or other high exciting powers, when they are unskilfully exhibit-



ed. Scurvy, in fact, appears to be a disease merely general, and in its origin of slight degree; at first arising from the subduction of nourishment, and the mental stimuli, and afterwards increased by an excessive, or irregular application of other exciting powers, and a continued negation of food sufficiently nourishing. Accordingly, the gradual re-application of food sufficiently nourishing, and of the mental stimuli, is alone, for the most part, sufficient to cure the disease. It is upon the principle of the gradual re-application of nourishment, that vegetables have been found at first preferable to animal food. And this fact it was, if the above reasoning be right, that led to the error, committed in the text, of considering scurvy as a disease of accumulation.

WITH respect to the excitement and excitability, a more elegant and just arrangement of the propositions might, no doubt, have been made. This defect, however, is not of material importance; as the principles of the doctrine are still sufficiently intelligible; and every one, who understands them, as they now are, will be able to judge, what they ought to be.



AN early and sincere admirer of this doctrine, for whose judgment I entertain a respect, having expressed some doubts in regard to the non-existence of diseases of excessive excitement, and requested me to re-consider the subject, a deference for his opinion, and a wish to place the matter in a clearer point of view, induce me to enter upon a detail, which seemed at first unnecessary. As the entire rejection of diseases of excessive excitement, is a great deviation from the original doctrine, and one of very considerable importance in its influence upon practice, I shall endeavour, by stating the grounds of it at some length, to obviate all reasonable objections to the theory. In this place, it may be proper to observe, that medical facts, as they have been called, are too often nothing more than a loose relation of circumstances. A fact, properly speaking, must be so evidently true, that every man, possessing sound organs, may discern it. And the general facts, or principles, which are inductions from particular facts, may also be discerned by all men of ordinary capacities, who will take the trouble of going through the necessary steps in reasoning. But where are the facts of this description, which prove that some diseases arise from what has been called, by Brown,



a state of excessive excitement, and, by others, a state of plethora? If they can be produced, I will with much readiness acknowledge my error, in having denied the existence of such a state. Until that happens, however, there is no good reason why it should be taken for granted, upon mere *ipse dixit*. As in medicine, much useless controversy might have been avoided, by attending to accuracy of expression, it may not be improper to explain the sense, in which the term "excessive excitement" is here understood. Excitement is meant to express the vigor, with which the functions of life are performed, in all their different degrees. But the functions of life can only be performed in a due, or in a deficient degree. To say that they can be performed in an *excessive* degree, is as great a contradiction in terms, as *excessive virtue*, or *excessive joy*; the one is *vice*, the other *pain*. When stimulant powers are applied in due proportion, the excitement is at the degree which constitutes vigor, tone, or health. But when they are applied, either in a deficient or an excessive degree, the power with which the functions of life are performed, i. e. the *excitement* is diminished. That power consists in a pleasant, easy, and exact use of these functions; which is certainly not enjoyed in the



diseases, that have been referred to a state of excessive excitement. When a degree of stimulant power, higher than is necessary to the state of health, is applied, the functions of life will be performed with more than usual vigor, before they fall into a state of indirect debility; but never with *excessive* vigor. The *action* of the fibre may be excessive, but its *power* cannot.— If we trace the progress of the living functions, in a person exposed to the action of high stimulant powers, it will be found, that their vigor is first increased to the highest point, and afterwards diminished in a degree proportionate to the excess. But if these powers be gradually subducted, that diminution will not take place; or if they be re-applied, it will be removed; unless the excess has been such as to occasion the destruction of organs. It will not, I believe, be denied, that the headach, sickness, &c. which arise after excessive drinking, constitute a state of indirect debility, which might have been prevented by the gradual subduction, and is to be removed by the re-application of stimulant powers. That a certain quantity of spirits, a ride, &c. will remove these symptoms, is a fact that is known, almost to every one. After excessive walking, or dancing, that state of indirect debility



constituting fatigue, is not immediately induced. It becomes more severe the second and third day, unless, by a certain degree of walking, or dancing, or the substitution of other stimuli, in the intermediate time, it be prevented. After such an excess, rest is exceedingly injurious.\*— It is equally true, that the delirium, fever, &c. which arise from excessive exposure to the sun, from opium, æther, mercury, or any other stimulant power, applied in too high a degree, depend upon indirect debility; and that they may be prevented by a gradual reduction, or cured by a proper re-application of the same powers, or of others equivalent in force. None of these symptoms occur, during the action of the exciting powers; they always commence after these powers have been withdrawn. If this be denied, it must be supposed, that medicines lie dormant in the body for some hours, after having been taken; and then, all at once, begin to act. But headach does not instantaneously follow the application of spirituous liquors; delirium, or

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\* Dean Swift's mode of taking exercise, but in a somewhat lower degree, was good. The regulation of exercise and the passions, is at present almost totally neglected, in the cure of diseases. They are subjects which seem to be yet but little understood, although their importance to health and to morals are evidently great.



fever, the application of opium, or the solar rays; vomiting, the application of tartar emetic; salivation, the use of mercury; purging, the exhibition of cathartics; sweat, of sudorifics; nor vesication, the application of a blister, or of fire, to the skin.—On the contrary, these symptoms always appear some time after the application of the exciting powers; and may be prevented by a gradual reduction, or cured by a judicious re-application of the same powers, or of others equivalent in force; excepting, indeed, when the force of the noxious power has been so great, as to produce an immediate lesion of organs. Let us take a familiar case, as an example. Suppose an arm, or a leg has been exposed to the action of fire, no person, in his right senses, would think of plunging it into cold water, or snow, or applying ice. It is a fact well known, that ardent spirits, vinegar, and other stimuli of high degree, are the proper remedies; and that, if applied in due time, and in sufficient quantity, they will prevent the inflammation, vesication, pain, and fever that would otherwise ensue. If the principle be established, in one case of excessive application of stimuli, it must equally apply to all. Every fact concurs in proving, that the bad symptoms



which arise, after an excessive application of the stimulant powers already mentioned, or of others, depend upon a state of indirect debility, *not* upon such a state as that of excessive excitement; and that they are to be prevented or removed by the proper application, *not* by the subduction of stimulant powers.

If, to a person in health, a very high degree of heat has been applied, as in exposure to the rays of a burning sun, would it not be as dangerous to remove him suddenly into a cool, or even a temperate atmosphere, as it would, in the case of a person, who had been exposed to a high degree of cold. In the one case the fact is universally admitted, and the principle applied to practice: Why not in the other? Is it more difficult to comprehend that, after an application of extraordinary stimuli, a sudden subduction of them should produce indirect debility, than that the same effect should follow a sudden re-application of the ordinary stimuli, after they have been for any time withheld?—Upon principles equally clear, the excitability, in the one case, would not be accumulated; in the other, it would be exhausted. Hence it is evident, why cases of *coup de soleil* are so frequently fatal. I should think my-



self acting with equal propriety, in suddenly subducting, not only the high stimulant power of the solar rays, after having been for some time applied, (at least without substituting another stimulus nearly as powerful, and then gradually reducing it) but farther taking away a quantity of blood, and diminishing all the ordinary stimuli, as in plunging legs nearly frozen into hot water, giving a pound of meat to one who had been long fasting, and farther applying, to persons, in these states, opium, æther, or brandy. It is much to be regretted that, in this, as well as in many other cases, practitioners who are not themselves convinced of the efficacy of blood-letting, should think it incumbent upon them, from a false desire of reputation, or a regard to interest, to put it so frequently in practice. It is very true, that a conformity with the common practice is safest in a prudential view. For, if a patient dies of peripneumony, without the formalities of bleeding and purging, he will be said to have lost his life, in consequence of these omissions. But if he dies, after they have been duly performed, it is only from the necessity of his fate.



PERIPNEUMONY, in reality, is seldom a dangerous disease, until, by blood-letting and other debilitating means, inflammation and adhesion of membranes, suppuration, and dropsy are produced.—Has a person ever died in a state of excessive vigor? No, nor ever will. No danger, then, need be apprehended from such a state.

If it be a certain fact that opium, judiciously repeated, will prevent or cure those very symptoms, which an unskilful application of it may have produced; if, by the proper exhibition of mercury, that medicine may be given, not only without producing salivation, but so as to cure it; if the sickness and headachs that occur, after excessive drinking, may not only be prevented by a gradual diminution of the excess, but may be cured by the application of a certain degree of the same power. If, I say, all these be facts (and they will be found so by those who will give them a fair trial) the inevitable conclusion is, that all the diseases in question, depend upon a state of exhaustion or of indirect debility, and are to be cured, by the application of stimulant powers, in a degree proportionate to the exhaustion.



FROM the general ignorance and neglect of this doctrine, the best adapted of these powers, to particular cases and degrees of disease, have not yet been well ascertained. But in proportion as it is more generally received, physicians, instead of random empirical prescriptions, will apply powers to living bodies, according to known principles, and with a view to particular effects. They will consider the living body as a whole, upon the state of which depends that of every particular part; and they will desist from the hopeless task of prescribing for stragling symptoms. They will co-operate in discovering the relative powers, the duration of their action, and the best method of exhibiting, every substance that can be employed in medicine. While, in diseases of the highest degree, they will all probably employ the most diffusible stimuli, as opium, æther, camphor, volatile alkali, mercury, &c.\*; in the lower degrees, each may with advantage give a preference to his favourite medicine. And if he applies it, so as to support the excitement, health will be re-produced, whether he uses bark, or

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\* The powers of arsenic and other substances called poisons, are by no means well ascertained. But we have implements enough, if we knew how to use them.



wine, salts, aloes, or gamboge ; castor oil, rhubarb, or cream of tartar.

NOTHING perhaps has contributed more to increase the confusion in medical doctrines, than the inaccurate language and loose reasoning, with which the cultivators of the art have found it necessary to veil the absurdities of their systems. The division of causes into proximate and remote, is a remarkable instance of this. It shews evidently that, in medical reasoning, POWER has uniformly been confounded with CAUSE. Many powers may combine to produce one effect ; but it is not any one of these powers, but the sum of the whole, that constitutes the *cause* of that *effect*. Thus, excessive heat,\* fatigue, bad news, noxious air, may all combine to produce a state of indirect debility. The cause of this state of indirect debility, is *not* excessive heat, fatigue, bad news, or noxious air ; *but* the sum of all these powers. Again, indirect debility, in its various degrees, is the cause of all those symptoms, which constitute diseases, depending

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\* It is always to be understood, that excessive heat, or other stimuli applied in excess, relates to the state of the excitability, not to any particular standard of heat, or any degree of other stimulant powers.



upon that state, each of which has, in nosological systems, obtained a particular name. But, as there can be nothing intermediate between a cause and its effect, and as there can only be required one cause to produce one effect, *remote cause* is evidently a gross contradiction in terms. To say that any of the powers, the application of which will produce a state of indirect debility, is a *cause* of symptoms, which are *consequences* of that state, appears to me as great a perversion of reasoning, as it would be to affirm, that a man dies *because* he has been begotten. The one event undoubtedly precedes the other; but they are not in the relation of cause and effect, as these terms are generally understood.

ANOTHER circumstance, which has contributed to prolong the public delusion, in respect to the uncertainty of medical principles is this. THEORY and HYPOTHESIS, I hope and believe more through ignorance than design, have been very generally confounded under the common name of OPINION; as if it were impossible, that principles should exist, because they have not been discovered by system makers; that, as all medical systems which have hitherto been fram-



ed are erroneous, there cannot be a true one in nature ; or that man alone is that curious composition, that " fortuitous concourse of atoms," which nature, in a frolicksome mood, had exempted from the operation of laws, fixed, immutable, eternal.—It will be difficult, without the aid of inspiration, to reconcile assertions of successful practice, with a confession that it is founded upon conjecture. It will be equally difficult to account, with decency, for an opposition to a doctrine, of which the fundamental propositions are either self-evident facts, or inductions from numerous facts ; of which every proposition has an evident relation to every other, and the whole to every part. It might rather be supposed that the contention would be, who should apply the principles most correctly to practice.

To the ridiculous and vague objections, founded on the alledged danger of giving large doses of medicines, the following remarks, it is presumed, will be a sufficient reply. From the principles of the foregoing doctrine, it results that, in every disease, a sum of stimulant power equal, or nearly equal, to that which has produced the disease, must be applied, in order to



effect a cure. It is only when the sum of the powers so applied exceed that, which has produced the disease, that the medicines can do harm. In that case, and in that case only, they will produce a disease more dangerous, because higher in degree, than that which had previously existed. Hence it appears that, while in diseases of the highest degree, as plague, dysentery, and fevers, more especially in those cases in which organic lesion has taken place, the common doses of medicines is merely sporting with lives; in diseases, deviating but little from health, they, for the most part, exceed the just proportion: While, in some cases of the former, from four to five hundred drops of tincture of opium will be too little; in some cases of the latter, the usual quantity of from twenty to thirty drops, will be too much. Indeed in cases, deviating but little from health, those high stimulant powers are unnecessary, and ought not to be used. These conclusions will appear so evident, to all who understand the principles of the new doctrine, that it would be superfluous, and might seem impertinent, to dwell longer on that subject.

In like manner, it is evident whence the disputes, which have arisen among physicians, re-



specting the virtues of particular medicines, have derived their source. From want of just principles as a guide, the same power which proved useful in the hands of one man, from a particular mode of application, has been found injurious by others, from a different mode of exhibiting it. Hence the virtues of the peruvian bark, since it's first discovery, have been extravagantly extolled, and as unreasonably decried. Hence hemlock, which was so successfully used by the judicious Dr. Stork, entirely failed with other practitioners, and unjustly lost its reputation. Hence electricity, which, applied according to principle, I will venture to affirm, will be found a power of superior efficacy in the cure of diseases, has been greatly neglected; and when successful, has only been so by chance.\* And hence, more recently still, the inconclusive disputes concerning the effects of opium, and other substances of high stimulant power, applied to living bodies.

ONE of the most egregious mistakes which has been made, respecting the doctrine of life,

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\* I have some opinions regarding electricity, as applied to living bodies, which I shall take an early opportunity of verifying, or disproving by experiment. If they prove true, it will throw much light on the principles of the doctrine.



remains still to be mentioned. It has been understood, or rather misunderstood, to consist entirely in the exhibition of opium, brandy, and wine, in every case, and with no discrimination. To those who know it better, it must appear evident, that these substances have no more relation to the principles of the doctrine, than any other powers, that may be applied to the excitability. The free use of them, in a state of health, is even contrary to principle. But the laws of nature, as they respect living bodies, would seem, in the ordinary routine of custom, to have been nearly reversed. In a state of health, for the most part, too great a sum of stimulant power is applied; in a state of disease, generally too little. Suppose opium, brandy, and wine annihilated, the doctrine would still remain entire. Provided the excitement be supported, it matters not by what powers it is done. It is evident, then, that those, who have rested their opposition upon objections to any particular medicine, or the doses of medicines, could not have understood the subject. Indeed to understand is to believe in it. As soon will eyes, in a sound state, be unable to distinguish light from darkness, as a mind capable of comprehending the terms, can dis-



believe the fundamental propositions of the doctrine of life. If this be true, can it be denied, that the doctrine has, by all its opponents, been either prejudged or misunderstood?

THIS is not a question of party ; but a contest between truth and error. It is not the judgment, dignity, or character of this or that individual, that is in dispute ; but the truth or falsehood of a doctrine, whose principles embrace every part of animated nature. Whether discoveries have been made by a man named Brown, or a man named Cullen ; whether they have issued from the obscurity of a cottage, or the elevated desk of a professor, is of little consequence to the world. But it is of essential importance, that they should know the nature and extent of the discoveries. It is high time to bring the question to an issue. If the doctrine be true, it behoves those, who consider themselves as *multis experimentis eruditi*, avowedly to embrace it ; if false, they should, by reasoning, or a comparative trial, undeceive the rising generation, whose minds are rapidly receiving the infection.



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